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Forest Dept.

Madras Presy.

report

1928-29 and 1929-30

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Administration Report

OF THE

FOREST DEPARTMENT

MADRAS PRESIDENCY

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Government of Madras

DEVELOPMENT DEPARTMENT

G.O. No. 2159, 3rd December 1929

Forest Administration Report, 1928-29.

Order—No. 2159, Development, dated 3rd December 1929.

Recorded.

2. The Government note with satisfaction that during the year under review 3,421 sq. miles were under the management of forest panchayats and that all areas marked for transfer to panchayats have been so transferred.

3. Side by side with the transfer of the minor forests, the Government recognized the necessity of taking adequate steps to ascertain the potential value of the forest resources of the Presidency and utilizing them to the best possible advantage. It was held that intensive exploitation on modern lines would yield considerable profit and a special branch called the Forest Engineering Branch was constituted in 1923 under the control of an expert in modern methods of exploitation. At the outset it was recognized that, before any appreciable results could be looked for, an immense amount of organization was required, that the situation of the greater part of the timber forests in hilly and difficult country would present problems which would have to be surmounted, that an efficient staff would have to be trained in methods and processes which it had not till then handled and that the problem of market for the more or less unknown and less valuable timbers that existed in the Madras forests would have to be solved. The constitution of the special branch was therefore regarded as an experiment designed to secure that large schemes of development when undertaken were started on right lines and with a clear understanding of their prospects as profit-making enterprises. This special branch of the Forest Department has now been in existence for over six years and it is time that a complete examination of the situation on the valuable experience gained so far should be made with a view to decide how far the experiments now being carried out should be continued, altered or abandoned. It should be stated that the operations undertaken in various areas during recent years in the methods of extraction and conversion have proved useful object lessons; but the financial

results of the undertakings have not, due to various reasons, justified the continuance of at least some of them. The Government had therefore to direct the closure of the exploitation operations in the Chenat Nair forests and also the abandonment of the Saw Mills established at Olavakkote, Top Slip and Parappa. They have not yet come to a decision regarding the future of the Saw Mills at Chedleth and Beypore; but the question will be considered and a decision arrived at as soon as practicable. The decision to abandon the operations at Chenat Nair and some of the Saw Mills has created the necessity to undertake a wider and more detailed examination of the future policy that should be followed hereafter in the matter of forest administration in general in this Presidency. If it is found after such examination that mechanical exploitation is not likely to pay for the class of forests that grow in this Presidency, then questions such as the future requirements of the staff, especially in the higher ranks, for the kind of work that will still remain to be done by the Forest Department, the problem of working plans, research, etc., will have to be considered and decided. The Government are alive to the necessity of giving careful consideration to the different aspects of these difficult questions before arriving at a final decision. The whole question of the future policy of the Department is accordingly engaging the earnest attention of Government.

4. The Government note with interest that the experiment in the cultivation of lac undertaken by the Deputy Forest Utilization Officer in North Salem Division has been successful. They also note that the revenue and expenditure during the year including the net results of the transactions relating to commercial concerns in 1927-28 were Rs. 58·94 lakhs and Rs. 45·85 lakhs respectively against the corresponding figures of Rs. 51·29 lakhs and Rs. 49·13 lakhs for the year 1927-28. There was therefore a surplus of Rs. 13·09 lakhs which is a distinct improvement on those of any of the years since 1919-20.

(By order of the Governor in Council)

S. V. Ramamurti,
Secretary to Government.

To the Chief Conservator of Forests.
,, Accountant-General.
,, Secretary to the Government of India, Department of Education, Health and Lands (with C.L.).
,, Inspector-General of Forests (with C.L.).
,, Board of Revenue (Land Revenue and Settlement).
Press.

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Proceedings No. 399, Press, 15th October 1929.

Administration Report—Forest Department, 1928-29.

R. D. Richmond, Esq., I.F.S.,
Chief Conservator of Forests.

Proceedings—No. 399, Press, dated 15th October 1929.

I have the honour to submit the report of Forest Administration in the Presidency for the year ending 31st March 1929.

CHAPTER I.—INTRODUCTION.

The year has not been marked by any striking developments, the principal points for note being the satisfactory increase in the gross and net revenue, and steady all round progress.

2. It is now possible to review more closely the experimental work which has been going on for some time in respect of the intensive exploitation of the evergreen forests, the finding of profitable markets for timbers which have hitherto been of low value, and the use of saw mills in connexion with the evergreen species as well as in the conversion to scantling of timber which is of low value in the log. The cost of log production from the evergreen areas is so high and the value of the common species so low that exploitation on the lines referred to cannot be made to pay; there is a fair demand at remunerative prices for a part of the yield, but the average prices obtained are so low that, even after making allowance for a somewhat illiberal method of accounting, it is evident that this type of work cannot be made to pay, and it has been decided that the Chenat Nair operations, together with the Olavakkot Saw Mill, shall be closed down. It is perhaps unfortunate that so much was claimed for these works at the outset, they were essentially experimental and useful lessons have been learnt.

3. In the working, sylvicultural considerations have been subordinated to the interests of the exploitation experiment and it is clear that modification of the methods of exploitation would have to be devised were forest areas of this class to be worked in the future, and a conclusion of the recent Sylvicultural Conference at the Imperial Research Institute was that it will be at least ten years before a satisfactory method of working evergreen forests can be evolved.

4. There is also the question of the undesirability of felling, intensively, forests on steep hill slopes. But it is satisfactory to be able to record that a remunerative method of working this class of forest is being developed, by light selection felling, followed by the restocking of the gaps with valuable species. It may be taken as established that this type of work, the felled trees being converted by hand into railway sleepers and other forms of marketable timber which is dragged by hand over considerable distances to the plains, pays. As an example, it may be stated that the working of about 450 acres in the Silent Valley, less than three trees per acre being felled, resulted in a profit of Rs. 40,000 and, while so much cannot perhaps be anticipated from the more remote areas, some adaptation of elephant dragging to these particular needs and the construction of cheap fair weather roads should result in transport charges being kept at a reasonable level. On the sylvicultural side success has been claimed for the methods adopted, but it is too early to be definite about this. At all events the character of the forest is maintained, overmature timber is removed at a profit and quantities of timber, no less than by more intensive methods over small areas, are exploited.

5. It is hoped considerably to extend work on these lines, a rather more intense degree of felling appears to be justified, and it is clearly of advantage to remove, as quickly as possible, timber which is deteriorating, particularly as the railways seem certain to make more and more use of the metal sleeper as time goes on. In this regard it is interesting to observe that the first two countries to adopt the metal sleeper, are reverting to the wooden one and it is possible that the use of metal in place of wood will be a passing phase in India.

6. In the year, 55,694 sleepers of all classes were supplied to the railways as against 34,444 in 1927-28.

7. The saw mills made use of in connexion with the exploitation of timber of deciduous species have shown disappointing results : a profit is made where teak is available for milling, but not otherwise, and, while it is possible that the existence of a mill will influence log prices to some extent, it is probably more profitable to sell all except the very worst timber in log form, in which case the sawn yield (from these inferior logs) is so poor that the cost of production exceeds what is obtained by sale. Another difficulty lies in the fact that, while timber specially sawn to order of specified sizes is sold remuneratively, the demand for the stock sizes of miscellaneous species is poor. The timber turned out by the mills is mostly of excellent quality ; it is probably the case that it is too good and the grading rules too stringent, resulting in classifications which are unjustified and which mislead purchasers.

Finally, it is doubtful if the State, which cannot work with the freedom of commercial practice, whether its accounts are kept on commercial lines or not, should indulge in trade in sawn timber. It is believed that this is best left to private enterprise which will no doubt have been stimulated by the experiments conducted by Government.

8. An enquiry made in the year under report into the conditions of the timber markets of the province disclosed the interesting fact that some 20,000 tons of timber, other than teak, is annually exported from the West Coast to Bombay and places further north. This is obtained from private sources and is marketted at prices with which the department is unable to compete. For how long this drain upon the private forests, which are not worked on any principle can continue is a matter for conjecture, but it is evident that large areas of private forest have been denuded of marketable timber and that the values of timber must increase.

9. The quantity of timber exploited from reserved forests under the management of the department, is expanding and amounted to 2,709,000 cubic feet of which 1,896,000 cubic feet was extracted departmentally. The yield of timber and fuel from departmental forests was 18,420,000 cubic feet representing however only 1·8 cubic feet per acre. Further expansion is possible as working plans develop new areas and, as the plantations being formed become productive, but it is to be remembered that, when forest reservation was first undertaken, the majority of the forests were in a much degraded condition, restoration to normality is a slow process and, while money and material are being obtained in the process, it must be many years before the full reward is reaped and the forests produce all that they should.

10. A large proportion of the forest revenues is obtained from sandalwood and there was an increase of price in the year, to an extent, be it noted, which has put out of business a sandal oil distillery in New York. There is still inevitable overcutting on account of spike disease, in connexion with which much interesting work is being done by the Indian Institute of Science and there now appears to be some reason to believe that the virus may be transmitted by an insect.

11. It is hoped that good may result to the forests no less than to the cattle of the country as a result of the recommendations of the Royal Agricultural Commission and that the formation of fuel plantations in the vicinity of villages may be stimulated. The forested areas of the country are badly distributed and the value of a forest will often depend more upon where it is located than upon what it contains. The existing policy is to work every possible

small timber and fuel area, even though poor prices be offered, so that the people may be afforded a legal means of obtaining what they require.

CHAPTER II.—WORKING PLANS.

12. The working plan for the deciduous forests of the Wynaad was completed and sanctioned, and progress has been made in the revision of Mr. Minchin's plan for the Ghumsur sal forests in Ganjam. Limited staff has caused the progress of the Mount Stuart Working plan to be slow. Work has been satisfactory in the preparation of plans for South Mangalore, for Chenat Nair, the Silent and Attapady Valleys in Palghat, and for the sandal bearing areas of North Coimbatore.

13. The Logging Engineer was engaged on two important projects, the collection of data in New Amarampalam and at Mount Stuart. An area of about 21,500 acres was mapped and cruised during the year. The Logging Engineer also completed and submitted his data for the Someshwar forest in South Kanara. These show that the value of these forests has been considerably overestimated ; but, if no exploitation project of the magnitude predicted will be possible, an extension of work is justified and it remains for the special branch to draw up a suitable plan for the work of South Kanara forests, to include also the extension of *Hopea parviflora* in suitable localities.

14. A number of working plans of less momentary importance were prepared by District Forest Officers or Assistants working under the local Conservators. Consolidated plans for Chittoor, North Cuddapah, and part of Lower Godavari were completed and sanctioned, and that for East Kurnool has received sanction since the close of the year. Revised plans have been received for the Nilgiri plantations, for Kondapalle reserve in Guntur and for the Sriharikota forests in Nellore. Another revised Nellore plan, that for the Sathiavedu range, is under scrutiny. Consolidated working plans for the forests of Anantapur and South Cuddapah neared completion, and work in West Kurnool was begun. Plans in Vellore, Central and North Salem are being prepared. The preparation of the Tinnevelly Working Plan was in abeyance, the delay in submitting the revised plan has not been accounted for.

The Working Plan for the Central Salem division has been completed and consolidated working plans for the North and South Salem divisions and a revised working plan for the Hosur sandalwood areas are in progress.

Simple schemes were framed for working the sandal areas in the Dharmapuri range in North Salem and the Kollegal range.

These are of a purely temporary nature, pending opportunities for the preparation of something better.

The Working Plans Conservator scrutinizes all plans, whatever the agency of preparation.

15. Annual Form No. 28 shows the area for which working plans are not required at present as 4,344 square miles. This is incorrect: working plans are required for every acre of reserved forest and at the earliest possible moment. All that is possible is being done to achieve this end, the special branch concentrating, for the time being, on the more important areas, while local officers do what they can in respect of the others.

16. The expense incurred on the preparation of plans has been a cause of some anxiety. The principal reason for this is that the Working Plans Officers have been supplied with insufficient staff, the work takes a long time in consequence and the pay of the Working Plans Officer is the principal item of expense. But even at present costs, the amount debitable to exploitation under the plans completed will amount to only a few pies per cubic foot; the information collected will be of use in future periodical revisions of the plans, and it is important that the work be done thoroughly so that workable plans may be evolved.

17. The final scrutiny of all control records is carried out by the Working Plans Conservator with the result that control of working plans prescriptions is much improved. This control is vital.

18. Progress was made in the compilation of yield tables for sandalwood and something has been done in this regard in connexion with the main timber species.

CHAPTER III.—UTILIZATION.

(i) SUPPLY OF PRODUCE.

(*a*) *Timber.*

19. The total output of timber was 100,480 tons or 4 per cent in excess of the figure for the previous year. The details are—

Removed from	By Government.	By Purchasers.	By Free grantees.	By Right-holders.	Total.
	TONS.	TONS.	TONS.	TONS.	TONS.
Reserved forest .. .	37,320	15,100	1,100	60	54,180
Unreserves	680	35,140	10,000	480	46,300
Total ..	38,600	50,240	11,100	540	100,480

There was a decrease in the outturn of timber extracted departmentally in the First Circle owing to the cessation of fellings for the Russellkonda Saw Mill. This was set off by increases elsewhere, principally in the Fifth and Sixth Circles.

In the last five years timber exploitation by departmental agency, from reserved forests, has increased by 50 per cent.

The total figures do not include removal from forests under Panchayat management which, while under the control of the department, produced considerable quantities of small timber and fuel.

20. The areas under the control of the department have decreased by 2,669 square miles in the last five years and the yield (timber and fuel) from departmentally controlled forests has increased by 15 per cent in the same period, but the average yield per acre is still as slow as 1·84 cubic feet.

21. The increase in extraction by purchasers was chiefly in the Second and Fourth Circles and was due to more extensive removals from unreserves and to the leasing of larger areas in the Kurnool divisions.

22. There was a decrease of 44,000 cubic feet in the quantity of departmentally collected timber undisposed of at the end of the year. Two hundred and fourteen thousand cubic feet of sal, rejected from supply to the Russellkonda Saw Mill, was sold, *in situ*, for a little under four annas a cubic foot, a higher rate than was obtained for accepted timber.

(*b*) *Fuel.*

23. Three million one hundred and forty-one thousand and two hundred tons of fuel were removed from reserved forests of which 30,590 tons were by departmental agency. The outturn from unreserves is recorded as 37,560 tons; it must have been a great deal more. The increase in the output by departmental agency (11,273 tons) was principally due to the felling of additional areas in the Kurnool West division to meet an increasing demand for fuel and to increased departmental working in the South Coimbatore, Tinnevelly and Kollegal divisions.

The increased removal by purchasers is due to the sale of a greater number of fuel coupes in the Guntur and Nellore divisions, and to the larger yield from coupes sold in the Chittoor division. Conservators have not reported on the accuracy of the figures recorded by contractors or of the results of checks imposed on them by the indicator areas. This is to be done for the current year and steps are to be taken to ensure more accurate figures of yield.

(c) *Bamboos.*

24. The value of bamboos removed by all agencies during the year was Rs. 4·05 lakhs against Rs. 3·52 lakhs in the previous year. The increase was marked in the First, Fourth and Sixth Circles and was mainly due to keener competition at the sales of bamboo coupes in the Upper and Lower Godavari and Vellore divisions and to the collection of five kists during the year, being the first year of the three-year bamboo lease in the Vellore division, as against three kists in the previous year.

25. In the event of a pulp and paper mill being instituted at Rajahmundry, large areas in the Upper Godavari division will be exploited for the raw material.

26. An offer has been received for the lease of the Ita bamboo in Tinnevelly with a view to its manufacture into pulp and paper.

(d) *Sandalwood.*

27. Five hundred and sixty-six tons of sandalwood were sold for Rs. 8,48,212 as against 677 tons for Rs. 9,24,295, in the previous year. As usual, sandalwood was sold by auction at Tiruppattur, Vellore and Satyamangalam, the quantities sold being 263 tons, 59 tons and 244 tons respectively. The average price realized was Rs. 1,498 per ton as against Rs. 1,365 in the previous year.

There was decrease in the quantity of sandalwood exploited to the extent of about 149 tons, attributable to the extraction of only dead trees instead of both dead and dying trees in the North Salem division. There was also a reduction in yield due to the bigger spiked trees having been extracted in previous years.

(e) *Grazing.*

28. 12·03 per cent of the forests managed by the Forest Department was closed to grazing either throughout the year (11·71 per cent) or for part of the year (·32 per cent). Grazing permits were issued for 1,672,257 animals as against 1,616,224 in the previous year. It is reported that permits were issued for 1,054,093 animals for grazing in panchayat forests. During the year, 80,575 animals grazed free of charge in the areas under the control of the Forest Department as against 77,585 animals last year. In the forests under panchayat management, 2,481 animals are reported to have been allowed free grazing. The revenue foregone by Government by allowing free grazing and grazing at concession rates was Rs. 42,173.

29. The average incidence of grazing in the reserved forest under the control of the Forest Department works out at 5 acres per animal as compared with 5·5 acres in the previous year, the figure being as low as 2 in Lower Godavari and 3 in Guntur. Little as these figures mean, in view of the considerable areas where there is no grazing or no cattle, they do indicate that there is overgrazing of the pastures which are frequented. Viewed from the standpoints of the forests and the cattle, far too many animals are admitted to reserved forests—the remedies are an increase in the fees and a limit set to the numbers admitted to particular areas.

(*f*) *Minor forest produce.*

30. Ordinarily the right to collect minor produce is leased out. The revenue derived in the year under this head was Rs. 9,07,235 (Rs. 3,83,011 from reserved forests).

31. Considerable development should be possible, but a principal difficulty is grading in the case of the major items and, although something may be achieved by the efforts of the Deputy Forest Utilization Officer in advising merchants, it is probable that collections should be departmental. This, however, would entail a much increased budget provision. But a start in a small way is being made: myrabolams in North Coimbatore will be collected departmentally in the current year.

32. Lac is now established in one division. A proposal to extract match woods from the Godavari forests for manufacture in Rajahmundry is under the consideration of Government. Considerable quantities of soft woods are extracted in Kurnool for slate manufacture.

33. The necessity for provision for the removal of green leaf for manure is a source of embarrassment; the position is reported to be particularly serious in the Fourth Circle and it is high time that the reserves left in charge of the department were freed from this burden. The only remedy that can be suggested is the fixing of a term after the expiry of which removals will be absolutely prohibited, the people in the meantime learning to grow their own manure-leaf crops. This it is believed they would do, if pressed, and it is gratifying to note the recorded increase in the area under this crop in the Srivilliputtur and Nangüneri taluks.

(*g*) *Removal of forest produce by free grantees and rightholders.*

34. The estimated value of forest produce removed by free grantees and rightholders amounted to Rs. 1,25,840 against Rs. 1,32,950 in the previous year. The decrease was due to the

fact that in the previous year large free grants had been made in Nellore, Chittoor and in most of the Ceded districts for the reconstruction of houses damaged by the cyclone of November 1927. Most of the free grants in the year under report were for rebuilding houses destroyed by fire.

(ii) COMMERCIAL UNDERTAKINGS.

(a) Chenat Nair (including Olavakkot Saw Mill).

35. The total quantity of logs extracted was 211,332 cubic feet as against 157,748 cubic feet in the previous year. Of this quantity, 145,614 cubic feet were disposed of to the Olavakkot Saw Mill, 56,104 cubic feet were converted into hand-sawn sleepers and 4,564 cubic feet into hand-sawn scantlings. Four thousand seven hundred and fifty cubic feet of timber (mainly rosewood) was sold in log form.

36. The cost of log production decreased from Rs. 1-0-3 to As. 15-6, but the direct cost of production increased from As. 10-9 to As. 11-0, the overheads decreasing from As. 5-7 to As. 3-0. The small increase in the direct cost was mainly due to a longer carting lead.

37. Nine thousand nine hundred and forty-five broad gauge sleepers and 10,305 metre gauge sleepers were produced and sold at a profit.

38. Forest sawn scantlings realized a profit of Rs. 755. Bamboos and fuel showed a profit of Rs. 8,501.

39. The timber used in the saw mill was 176,451 cubic feet, consisting of 151,192 cubic feet from Chenat Nair and 25,259 cubic feet of teak from Nilambur. The outturn from the Chenat Nair logs was 57·9 per cent as against 51·2 per cent in the previous year and the outturn from the Nilambur logs was 60·8 per cent as against 54 8 per cent in the previous year. The cost of conversion decreased from Rs. 1-1-0 to As. 11-7. The total cost of production of sawn timber decreased from Rs. 2-12-0 to Rs. 2-6-5. Including the cost of kiln seasoning, the cost of scantlings was Rs. 2-13-11. The all round average selling price was Rs. 1-14-6 per cubic foot, the sawn timber trading showing a loss of Rs. 67,873 (to which must be added a further loss of Rs. 25,538 on box manufacture) and the total loss on the Chenat Nair concern, after taking credit for the profit on hand-sawn timber extraction and other profitable items, was Rs. 45,321. It has since been decided to close down the work, with the exception of the hand extraction part of it.

(*b*) *Mount Stuart* (*including the Mill at Top Slip*).

40. The total quantity of logs extracted was 132 095 cubic feet as against 96,345 cubic feet in the previous year. Of this quantity, 81,584 cubic feet were carted to Pollachi for sale as logs and the balance was sent to the mill The cost of production and delivery at the mill was As. 13-2 and at Pollachi Rs. 1-1-3, as against Rs. 1-2-5 and Rs. 1-6-0 respectively in the previous year. The overheads were As. 8-0 as against As. 12-11 in the previous year.

41. As usual log sales were held at Pollachi, where 78,906 cubic feet of teak and other species were sold at an average rate of Rs. 1-13-6 per cubic foot. The result was a profit of Rs. 59,068.

42. A small quantity of refuse timber, branchwood and the like was converted into spokes and felloes which sold at a profit of Rs. 1,093.

43. The intake of the mill was 38,543 cubic feet. The outturn was 34·8 per cent. The cost of producing sawn timber was Rs. 4-15-3·64, of which the direct milling charges amounted to Rs. 1-0- , and the all-in cost of sawn timber delivered at Pollachi (including cartage and the selling expenses of the Forest Utilization Officer) is recorded by audit as Rs. 5-9-9·64 per cubic foot. A somewhat more liberal method of accounting would show the cost of production in a better light, but even so and if no charge was made for the felling, incidental expenses and delivery of the timber at the mill, the cost would still be a prohibitive one. Fourteen thousand eight hundred and ninety-seven cubic feet of sawn timber were sold at an average rate of Rs. 1-11-6 per cubic foot, the sawn timber trade resulting in a loss of Rs. 52,476.

44. The net loss on the Mount Stuart concern as a whole was Rs. 24,662 as against a loss of Rs. 16,370 in the previous year.

45. A proposal to close down the mill has been submitted to Government.

(*c*) *Nilambur* (*including Beypore Saw Mill*).

46. The total quantity of timber extracted was 298,224 cubic feet as against 210,823 cubic feet in the previous year. The output consisted of 110,712 cubic feet of teak from the plantations, 37,861 cubic feet of miscellaneous species from the natural forests in the Nilambur range and 149,651 cubic feet of teak thinnings and miscellaneous species from the Amarampalam forests. The cost of extraction and delivery at Beypore was As. 8-10·97 for the logs from the plantations as against As. 8-10·33 in the previous year; the cost of logs from the natural forests of Nilambur was As. 8-7·06 as against As. 9-4·80 in the previous year; the cost of logs from the

TWO ELEPHANTS DRAGGING A LARGE LOG THROUGH FLOWERED BAMBOO FOREST AT MOUNT STUART.

CHENAT NAIR. LOG ARRIVING AT LANDING. A TAIL TREE IN DISTANCE. HAUL 1,300 FEET.

Amarampalam range was As. 12-7·61 for teak thinnings and As. 11-4·32 for miscellaneous species. There was a reduction in the overheads from As. 3-1·76 to As. 2-0·63.

47. Seven thousand five hundred and forty-four cubic feet of teak were sold in the forest at Rs. 1-8-0 and 16,923 cubic feet of inferior miscellaneous species at As. 5-1.

48. Thirty-nine thousand nine hundred and twenty-two cubic feet of plantation teak was sold in the log at Beypore at an average for all classes of Rs. 2-5-6 per cubic foot, 1,854 cubic feet of natural teak at Rs. 2 and 11,155 cubic feet of other species at varying rates. The all-round average rate obtained was Rs. 1-5-2 per cubic foot. The log sales resulted in a profit of Rs. 73,707.

49. Sleeper operations by hand-sawing were also carried on. Two thousand three hundred and twenty-nine broad gauge sleepers and 904 metre gauge sleepers were extracted at a profit.

50. Eighty-six thousand and ninety cubic feet of logs were issued to the saw mill and 25,259 cubic feet were sent to the Olavakkot saw mill. The outturn at the Beypore mill was 45,281 cubic feet or 52·6 per cent as against 54·4 per cent in the previous year. The total cost of sawn timber decreased and the all-in cost of sawn timber including the Forest Utilization Officer's selling expenses amounted to Rs. 2-8-4·90 per cubic foot. The average sale price realized was Rs. 3-2-3. The result of sawn timber trading was a profit of Rs. 36,604 at Beypore and Rs. 17,981 at Olavakkot. The total profit from the Nilambur division forests was Rs. 1,28,788 as against Rs. 1,94,387 in the previous year. The profit would have been greater had a greater proportion of the timber been sold in the log, the figures making it evident that it is more profitable to sell in this way, for, while it may be rightly argued, up to a point, that the existence of the mill tends to keep up log prices, it is certain that, whatever benefit was so derived was incommensurate with the amount of the loss on milling when compared with log sales.

(d) The Wynaad Forests (including the Chedleth Mill).

51. A quantity of 139,634 cubic feet of logs was extracted against 138,836 cubic feet in the previous year. The logs from the Begur range were carted to the Mysore depot, the Sultan's Battery logs were carted to Nanjangod and the Chedleth logs were carted partly to the Chedleth mill and partly to Nanjangod. The cost of production and delivery at the Mysore depot was Rs. 1-2-0·48 at Nanjangod, Rs. 1-4-3·71 for Chedleth logs and As. 15-2·94 for Sultan's Battery logs and at the Chedleth mill As. 11-1·75. The above rates include overheads amounting to As. 5-10·13.

52. Logs were sold in the depots as well as in the forests. The log trading resulted in a profit of Rs. 1,40,356. Sleeper operations by hand-sawing were also conducted, 37,350 cubic feet of *Mesua ferrea* and *Xylia xylocarpa* being converted into sleepers.

53. Forty-one thousand and eighty-four cubic feet of logs were issued to the mill from which the outturn was 15,249 cubic feet, at 37·12 per cent as against 27·5 per cent in the previous year. The total cost of sawn material including overheads of Rs. 1-0-1 per cubic foot, and the expense of the Forest Utilization Officer, was Rs. 5-2-3·87 against which the average price obtained was Rs. 3-5-0. The result was a loss of Rs. 28,591 as against a loss of Rs. 46,925 in the previous year.

54. The net profit on the operations as a whole was Rs. 1,18,034 as against Rs. 13,926 in 1927-28.

(e) Parappa Saw Mill.

55. During the year, 82.618 cubic feet of logs were issued to the mill. The outturn of sawn material was 38,592 cubic feet or 46·7 per cent. The total cost of sawn timber was Rs. 1-7-4. Including cartage to Kasaragod, selling expenses of the Forest Utilization Officer and agent's commission the all-in cost of sawn timber at Kasaragod amounted to Rs. 2-5-8. The sawn timber was sold at an average rate of Rs. 2-6-0 per cubic foot. The profit on the year's outturn of sawn timber was Rs. 5,629.

(f) Overseas Trade.

56. The appointment of Messrs. Peirce, Leslie & Co., as overseas agents for the sale of Madras timbers is under the consideration of Government. During the year, 1,589 cubic feet of timber (consisting of 1,477 cubic feet of rosewood and 112 cubic feet of laurel) were sold for a net amount of Rs. 8,655. Besides these sales, the Forest Utilization Officer sold 2,501 cubic feet of timber (42 cubic feet of teak, 978 cubic feet of rosewood, and 1,481 of laurel) for Rs. 5,796 net.

(g) General.

57. The Forest Exploitation Officer at Olavakkot continued to be in charge of both the Exploitation of the Chenat Nair forests and of the saw mill at Olavakkot and, in addition, he was placed in charge of the general engineering work of the department on the abolition of the post of Forest Engineer, Roads and Buildings.

58. The Forest Engineer in charge, Saw Mills and Extraction Division, continued to be in charge of the saw mills at Top Slip, Beypore, Chedleth and Parappa, the Central Stores at Olavakkot, the Kal Ar Valley Sleeper Project and mechanical extraction at Nilambur.

In Nilambur mechanical extraction was hampered owing to a late start which dislocated the programme of work.

59. The Forest Utilization Officer continued to organize, co-ordinate and conduct sales of logs, scantlings and sleepers. He was in charge of the sale depots at Olavakkot, Pollachi, Beypore, Kasaragod and Nanjungod. The sales to Railways and the Public Works Department were dealt with directly by the Forest Utilization Officer himself, while those from private merchants were dealt with by an agent. The agent's revised agreement is under the consideration of Government, but after the close of the year, the basis on which he is paid commission was revised, a lower scale being adopted for teak and higher ones for the timbers the sale of which it is desirable to develop.

60. The sales effected by the Forest Utilization Officer showed an increase over those of the previous year :—

Logs.

—	—	Quantity.	Amount.	Rate per cubic foot.
		C.FT.	RS.	RS. A. P.
1927-28	Teak	170,445	3,58,504	2 1 8
	Other species	156,431	1,73,846	1 1 10
	Total ..	326,876	5,32,350	1 10 1
1928-29.	Teak	125,043	3,18,170	2 8 8·56
	Other species	157,984	1,67,275	1 0 11
	Total ..	283,027	4,85,445	1 11 7

Sawn Timber.

—	—	Quantity.	Amount.	Rate per cubic foot.
		C.FT.	RS.	RS. A. P.
1927-28.	Teak	91,630	2,78,671	3 0 8
	Other species	30,593	46,599	1 8 4
	Total ..	122,223	3,25,270	2 10 6
1928-29.	Teak	87,695	2,81,894	3 3 6
	Other species	53,433	81,865	1 8 6
	Total ..	141,128	3,63,759	2 9 3

Miscellaneous sales.

		RS.
1927-28 ..	Bamboos	12,342
	Teak poles	30,715
	Spokes and felloes	1,024
	Rejected scantlings and porotes	12,463
	Total ..	56,544
1928-29	Teak poles	4,308
	Spokes and felloes	11,141
	Porotes	714
	Total ..	16,163

61. Apart from the sales of logs and sawn timber, the sleeper sales, organized by the Forest Utilization Officer, who also passes the sleepers on behalf of the Railways, increased from Rs. 2,00,533 to Rs. 3,72,421. Thirty-seven thousand six hundred and forty-six broad gauge and 18,048 metre gauge sleepers were sold against 21,306 broad guage and 13,138 metre gauge in the previous year.

62. The Russellkonda Saw Mill was closed on 1st July 1928.

63. The proposals for the installation of a Three-Ply plant at Anamalai or Olavakkot are under the consideration of Government.

CHAPTER IV.

Sylviculture.

(*a*) *Natural regeneration.*

64. Progress is being made in the study of the regeneration of the evergreen forests. This is a problem which is exercising the mind of the department in provinces other than Madras. the complicating factor here being the occurrence of this class of forest on steep hill slopes subject to very heavy rainfall and a general conclusion reached at the Sylvicultural Conference held at Dehra Dun in the spring was that it must be several years before any conclusions can be reached. It seems to be evident, however, that thoroughly established regeneration must be secured before felling, and it is not sufficient to be content with any species : it must be possible to obtain that of the desired and most valuable kinds and it will no doubt be found that the effects of nature must be augmented artificially.

65. Natural regeneration in the deciduous forests is on the whole fair (the year was one of uncertain rainfall), if variable, but it does not persist readily in any quantity and attention is necessary to ensure development.

66. The regeneration of sal is uniformly good in the Plains Timber Working Circle, but notoriously uncertain in the Ravine Circle, and the Conservator should have stated what is being done to provoke it ahead of the fellings.

67. In South Coimbatore an experiment has been made to ascertain whether the regeneration of mixed teak and other deciduous forest in areas which must be worked on the selection method can be assisted artificially. A conclusion cannot be reached as bamboos have seeded in the area in which the experiment was in progress.

68. In Upper Godavari, a working scheme, the preliminary to a working plan, provides for some opening of the canopy and early

burning over a number of years prior to the final fellings as a means of assisting natural regeneration and work on somewhat the same lines is done in Kurnool.

69. Coppice regeneration is generally good; but the constant working of some areas is leading to deterioration and it is essential that steps be taken to improve the growing stock. Something is being done, it is true, but much progress cannot be expected until an officer is employed on research work of this class in the dry areas.

70. Reference was made in the last report to the work being done in the Walayar forests to augment the natural regeneration by coppice. This is definitely successful as are the experiments in Mallavaram and Tirumalaipalem, in Lower Godavari, and the Conservator should see that work in the latter two places is now extended.

71. A complaint from the Second Circle is that overgrazing acts adversely upon regeneration: in fact, the forest is called upon to exercise too great a number of functions. The remedy lies in excluding cattle altogether from areas in this circle which should be dedicated to the production of wood.

(b) Artificial Regeneration.

72. An area of 850 acres of plantation, principally teak, was formed in the year over clear felled areas and 289 acres of drifting sand in the Tinnevelly district were planted up with palmyra, while *Acacia Planifrons* and *Dalbergia tamarindifolia* were also experimented with.

The season was not a favourable one; but success was generally fair, though it is perhaps necessary to remind some officers, who are easily satisfied, that nothing less than 90 per cent can be referred to as success at all and that a complete and established stocking in the first year is the criterion of successful work.

73. The second rotation areas in Nilambur continued to give trouble, but a good aeration of the soil seems likely to afford a solution for what at one time appeared to be a serious problem. The method of regeneration with the aid of field crops has definitely failed in Nilambur; not that the method itself is a bad one, but it was undertaken on faulty lines and on too large a scale to commence with.

74. The first year's costs of plantations have been high in Nilambur and the Wynaad, in the first named they will be reduced and it is to be hoped that this will be so in the second as well, though labour is expensive and plantations at the elevation of the Wynaad have always been difficult to establish.

75. The experiment of mixing rosewood with teak in definite patches in South Coimbatore has been abandoned—the rosewood grows, but slowly to commence with, and the perimeter of teak plantation exposed to attack by weed, bamboo and other rank growth is so great that the teak has sufferred considerably. The mixture of other species with teak is most desirable (as is an underwood) but this can be obtained in other ways, and it is essential that woody species be not removed in the weedings as a matter of course—this is a matter of prime importance.

Elephants continue to do damage in the South Coimbatore plantations—any elephant seen in a plantation should be shot without question.

76. The Conservators' reports reveal the fact that operations connected with artificial regeneration (the original work and the replacement of casualties) are often conducted too late, while the recorded failure in many cases of work with sandal is to be deplored. In the case of the latter, there is still too much unorganized and desultory effort and, in respect of both cases, officers must understand that professional incompetence is a matter which cannot be overlooked. It is for Conservators to enquire closely into all cases of failure and to fix the responsibility, while it is their duty to ensure that all such work, until regulated by working plans, is carried out on some definite and well considered system. Good work is being done in Kurnool in augmenting natural regeneration by heaping up felling refuse and dibbling seed after the refuse has been burnt. This process is a promising one so long as tending is not neglected.

77. The results of the experimental planting of teak in the lower parts of Chenat Nair are promising. All areas suitable for this have now been selected. The locality is unsuited to the growth of first-class teak but it pays better to grow third-class teak than first-class anything else.

78. The Conservator of Forests, Fifth Circle, should enquire into the causes of the failure of regeneration in the Punachi Working Circle (South Coimbatore).

79. Reference need not have been made to red sanders planted in a rest-house compound and watered—this is not forestry.

80. The necessity for improving the growing stock of fuel areas by artificial means is now realized and it remains to evolve the best methods of so doing—the matter is not an easy one in the dry districts and, until a second Sylvicultural Research Officer is available, it is the duty of Conservators to conduct their own experimental work. But nothing is achieved by requiring coupe contractors to sow seed or the lower subordinates to do so "free of

charge"; it is hardly surprising that failure should be recorded in such cases and it was hoped that the days of this class of clowning were at an end.

81. The work of restocking the gaps made by selection fellings in the evergreens of the Silent Valley with *Acrocarpus* and *Artocarpus* promises good results, though it is too early to assume complete success.

82. It is necessary to extend the introduction of *Hopea parviflora* in suitable localities in South Kanara, this will be provided for in the working plan which is under preparation.

83. In future, Conservators should comment in their reports on the results of work undertaken prior to the year under particular reference.

(*c*) *Tending and other miscellaneous work.*

84. Some attention was paid to the tending of sandalwood, an important matter which should be developed further. Nearly 6,000 acres of *Hopea parviflora* regeneration were tended in the Wynaad and South Kanara at a cost of between six and eight annas an acre. It has been found that the tendency was to open up these areas too quickly with the result that the *Hopea* was overwhelmed with strobilanthus and other weed growth, resulting in continued and expensive tending being required--this is now corrected.

All other regular plantations have been tended.

85. A reference was made in the last year's report to the need for extended climber cutting in areas not actually under regeneration and for the preparation of systematic programmes to this end. There is no indication in the Conservators' reports as to what has been done and their attention is again directed to Mr. Wimbush's instructions.

(*d*) *Research and Experiments.*

86. A great deal has been done under these heads and what has been learnt is applied. But research is necessarily slow in the production of definite and positive results. It has been found that the Research Officer is handicapped by lack of staff--his work is necessarily scattered and it is essential that he should be able to ensure that his instructions are carried out and at the proper time. Proposals for an increase of staff have been made as well as for the creation of a second post of Research Officer for work in the drier districts.

The Research Officer is generally in touch with experiments and research work conducted by local officers, but there is still room for improvement in this direction and he should do more towards the issue of notes on experiments which are being conducted even if definite results have not been obtained. In this way useful information, preventing, too, duplication of effort, will be disseminated

and the officers of the department will be kept interested in a vital branch of the work.

87. The experiment in the cultivation of lac, undertaken by the Deputy Forest Utilization Officer in North Salem, has been brought to a successful termination and the work is now handed over to the District Forest Officer. The Deputy Forest Utilization officer is now experimenting in other localities.

88. The experimental manufacture of cutch in Cuddapah was not so successful, but a good deal was learnt and another attempt is being made.

89. It is stated from Guntur that *Hardwickia* and other species reproduce so freely as to make it unnecessary to determine the best way of improving the stocking. Were this really so, the Guntur forests would not be in the lamentable condition which they are in, and it is unfortunate that the experiments which were being conducted, particularly in Kondapalli where the first attempts were encouraging, appear to have been given up.

90. Spike disease in sandalwood continues and has spread to new localities. Much useful research work is being done by the Indian Institute of Science to determine the cause of the disease, the field experimental work being undertaken in North Salem.

CHAPTER V—GENERAL ADMINISTRATION.

(i) ALTERATION IN AREA.

91. About 36 square miles were disreserved, of which about 17 square miles were subsequently assigned to planters in Madura and in the Nilgiris. Two square miles in the Anantapur and Kurnool West divisions were disreserved for assignment to the depressed classes. About 4 square miles of leased coffee estates on the Shevaroys were disreserved for permanent assignment to the lessees. There was a decrease of about 4 square miles in Lower Godavari, Anantapur, West Kurnool, North Coimbatore and the Wynaad divisions due to recomputation of areas. About 2 square miles were added by reservation in Ganjam and Vizagapatam and by rectification of areas in Central and South Salems. The net result was a decrease of 40 square miles in the area of reserved forests which at the end of the year was 18,914 square miles.

92. About 11 square miles were declared reserved lands, while the area excluded owing to the issue of notifications under section 16 of the Madras Forest Act was only a fraction of a square mile. The area of reserved lands therefore increased from 332 to 343 square miles.

93. Three thousand four hundred and twenty-one square miles of reserved forests were under panchayat management during the year. There are no further areas to be handed over for this class of management.

(ii) FOREST SETTLEMENT.

94. Settlement operations were in progress in respect of about 118 square miles, the principal forests concerned being the Mudumalai block (75 square miles) in the Nilgiris division, and the Bailnad (16 square miles), Perumalmalai (7 square miles) and the Adukkam-Pudukkombai (7 square miles) in the South Salem division.

The selection of blocks for reservation in the Rampa Agency was continued during the year and considerable progress was made. Two blocks have been notified under section 4 of the Madras Forest Act and proposals for the notification of eight more blocks have also been received.

In South Mangalore, the settlement of the three blocks notified under section 4 of the Madras Forest Act is still held over pending survey of the villages and especially the survey of boundaries between warg and Government kumries.

(iii) DEMARCATION.

95. A total length of 259 miles of boundaries was demarcated (chiefly in Lower and Upper Godavari, Ganjam, North Salem, Kollegal, Madura, Wynaad and North Coimbatore divisions) at a cost of Rs. 6,850. The demarcation of 15,924 miles of boundary lines is reported to have been kept in repair, but it is feared that this important matter is in danger of being neglected and that reserve lines are often not adequately demarcated nor are the reserves marked in such a way as to make it obvious what the areas are. In the Nilgiris, demarcation carried out at considerable expense some years ago is disappearing, though it would have been a simple matter for the concerned subordinates to keep it in order. The particular attention of all Conservators and District Forest Officers is directed to this matter, as it is to that of *ensuring* that demarcation is correct, in accordance with the section 16 notification, in advance of survey, wherever undertaken. Inaccuracy in the Survey of India maps is attributable to this cause; the Survey Party must accept what is found on the ground and this is not always correct. At the close of the year, 408 miles of boundary lines remained to be demarcated, chiefly in the Kollegal, North Coimbatore and Madura divisions.

96. A matter requiring early attention is the proper marking of plantation areas. It is useless to erect boards, the legends on which are in paint sophisticated with kerosene oil, so that they are rapidly obliterated by the weather. The details should be burnt, or cut, into the boards.

(iv) SURVEY.

97. A Survey of India Party traversed and surveyed six reserves in the Lower Godavari division and thirteen blocks (116

square miles) proposed for reservation in the Rampa Agency and another six reserves (225 square miles) in the Upper Godavari division. The areas in the Lower Godavari division have been mapped on the 2" scale and those in the Upper Godavari division on the 1" scale. It is desired to deplore here a decision, taken some years ago, fixing the scale of maps for reserved forests at 2" to the mile. It is not a scale on which the working of a forest can be planned and it is to be regretted that 4" was not adopted. Fortunately some divisions have maps on the latter scale.

98. The Madras Survey Party took up the resurvey of the Omalur, Atur, Salem, Namakkal, Rasipur and Tiruchengodu taluks and incidentally surveyed the boundaries of reserved forests adjoining patta holdings. The survey of Bailnad, Adukkam-Pudukkombai and Perumalmalai blocks notified under section 4 was taken up by the Madras Survey Party towards the end of the year. The Madras Survey Party continued its work in the South Mangalore division and another party has been working in the Nilambur division.

(v) ROADS AND COMMUNICATIONS.

99. The chief new work of the year was the construction of a road from Chedleth Saw Mill to Chedleth which was completed; the total cost incurred was Rs. 34,363. The work was carried out by the Forest Engineer.

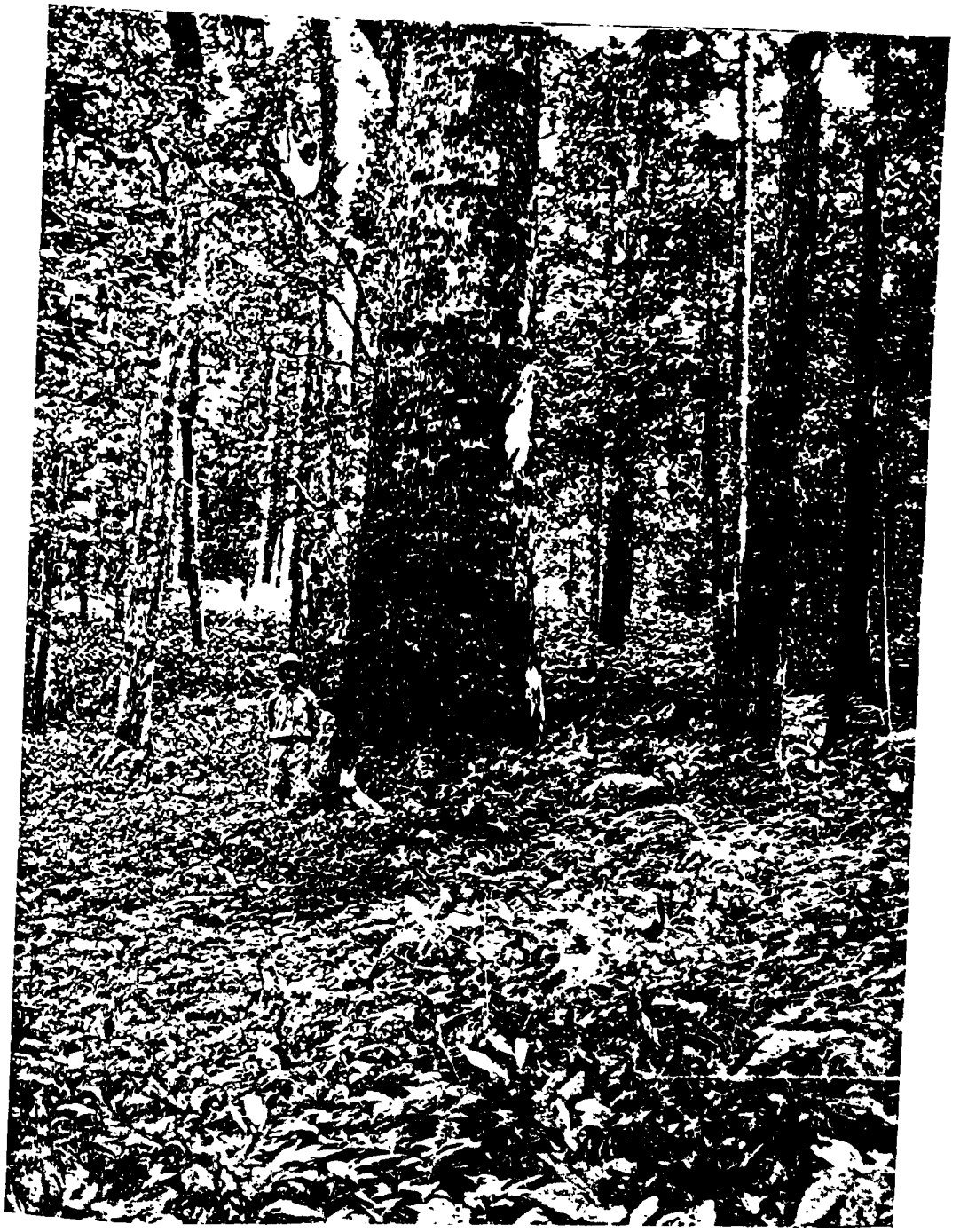
100. The carrying out of a road programme in Ganjam is most dilatory and no progress has been made in devising means for the extraction of timber from the Papikonda forests of Godavari.

101. As new plantations are formed, inspection paths must be laid out.

102. Steady progress in road construction is essential to the development of the work of the department and the Chief Conservator is always prepared to accept well thought-out schemes provided it can be shown that they will lead to the easier and more profitable extraction of forest produce.

103. A recent order requiring District Forest Officers to certify, at the end of the year, to their roads being kept in a state of repair has led to the Conservator increasing his budget demand under this head by one hundred per cent, the reason given for the increase being the necessity for the certificate. Comment is superfluous.

104. The total expenditure on new works was Rs. 89,259 and on repairs Rs. 99,914 as against Rs. 36,297 and Rs. 1,82,021 respectively incurred in 1927–28. The decrease in the expenditure on repairs is due to the fact that extensive repairs (much of it was work of a capital nature) to the Olavakkot-Elival road and the Amarampalam-Anapadi road were carried out in the previous year.



A BISCHOFFIA JAVANICA TREE IN SOUTH COIMBATORE.

105. Eighty-one miles of new roads were constructed and 1,827 miles of roads were repaired as against 137 miles and 1,830 miles respectively in the previous year.

(vi) BUILDINGS.

106. The construction of the District Forest Officers' quarters at Chittoor and at Olavakkot was carried out at a cost of Rs. 21,862 and Rs. 16,474 respectively and part of a quarters at Vellore has been constructed at a cost of Rs. 18,805. Miscellaneous buildings, such as inspection sheds, range offices, subordinates' quarters and rest-houses were also constructed in various divisions.

107. The total expenditure on buildings incurred during the year amounted to Rs. 1·78 lakhs as against Rs. 3·05 lakhs in the previous year. The increased expenditure in 1927–28 was due to the fact that six residential buildings for District Forest Officers were completed during the year.

(vii) OTHER WORKS.-

Improvement of water-supply in grazing grounds.

108. A sum of Rs. 2,313 was spent on the improvement of the water-supply in grazing grounds in most of the divisions except those in the Northern Circars and the West Coast divisions, the improvements consist of repairing existing tanks and wells and constructing new ones.

109. The public, where they volunteered to do so, were permitted to repair existing water sources and to construct new wells and tanks at their own cost and took advantage of this permission, chiefly in Guntur, where 18 tanks were constructed or repaired.

110. The total amount spent during the year on the construction and repair of wells and on the improvement of the water-supply in forests and eradication of rank vegetation amounted to Rs. 12,053 as against Rs. 26,713 in the previous year.

(viii) LIVESTOCK.

(*a*) *Elephants.*

111. The number of elephants on the books at the beginning of the year was 112, valued at Rs. 2,82,050. During the year, 32 elephants were captured (as against 25 in the previous year), 1 was purchased and 7 calves were born. Twenty elephants (including ten new captures) were sold for Rs. 39,600, ten including four new captures, died, three were handed over to the Raja of Kollengode (in accordance with the terms of the lease of the Tekkadi forests) and one escaped. The number on the books at the end of the year was 118 valued at Rs. 2,79,334.

112. Elephant-capturing operations were as usual conducted in South Coimbatore, the Nilgiris, the Wynaad and the Nilambur divisions. Eight animals were captured in South Coimbatore, 7 in the Nilgiris, 16 in the Wynaad and 1 in Nilambur. The cost of the operations was Rs. 10,195 as against Rs. 10,299 in the previous year. The elephants captured were generally small and these operations have not made good the normal wastage in working animals.

113. The special veterinary staff did good work, but there appears to be still a lot to learn about the cure and prevention of diseases caused by internal parasites.

(b) Cattle.

114. Seventy-five buffaloes and bullocks valued at Rs. 6,903 were in stock at the beginning of the year. Twenty were sold and six died. Four animals were purchased, the stock at the end of the year being 53, valued at Rs. 4,748.

(ix) BREACHES OF THE FOREST ACT.

115. The following table shows the forest offences of all kinds reported during the year as compared with those of the previous year:

Cases.	Injury to forests by fire.		Unauthorized fellings.		Unauthorized grazing.		Other offences.		Total.		Average of the three years ending 1927-28.
	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	
Cases taken to court ..	104	47	4,204	3,197	785	646	209	218	5,302	4,108	6,168
Cases compounded ..	337	171	14,182	15,069	3,935	3,103	935	1,041	19,389	19,383	19,738
Cases undetected ..	912	842	342	332	17	24	14	24	1,285	1,222	1,268
Total ..	1,353	1,060	18,728	18,598	4,737	3,773	1,158	1,283	25,976	24,713	27,174

116. Of the 22,935 cases disposed of during the year, 14,807 related to reserves and 8,128 related to unreserves.

117. The number of cases under the various heads has considerably decreased except in the case of 'Other offences' where there is a slight increase. The increase in the Sixth Circle amounted to 18 per cent, a fact which called for comment from the Conservator. The decrease is reported to be due to better protection and to the transfer of reserves to panchyat forests (the offences committed in which are not recorded in these reports).

118. Of the 4,794 cases (from reserved forests and unreserves) which were disposed of by the Magistrates, in 1,543 cases the accused paid the compounding fees in Court at the last moment (having put Government to the maximum inconveniences for no cause) and the balance of 3,251 cases proceeded to trial. In 2,710 of these a conviction was secured, the percentage of acquittal being 11, which is too high. In Palghat the percentage of acquittal was 15. The Conservator of Forests, Fifth Circle, is being directed to investigate into the cause for the withdrawal of as many as 117 cases in the Madura district.

119. A sum of Rs. 1,74,381 was realized as compounding fees as against Rs. 1,84,468 in the previous year. The average compounding fee for each case was Rs. 10-12-3 and for each accused Rs. 5-6-0 as compared with Rs. 10-13-0 and Rs. 5-6-1 respectively in the previous year.

120. A perusal of the Conservator's reports shows that an inadequate number of cases are investigated by District Forest Officers and Range Officers. In each of the First and Fourth Circles, four District Forest Officers held no enquiries at all and no details are forthcoming from the Second Circle. For the Fifth Circle no information is given in respect of Range Officer's enquiries. In Ganjam there is an assistant who is mainly concerned with protection, but he enquired personally into only one per cent of the reported cases. The matter is one requiring the closer attention of Conservators.

121. Considering the value of the produce involved, the sentences imposed in convicted sandalwood cases in the Fourth Circle appear to be low. The co-operation of the South Indian Railway Company Authorities in the detection of those cases is noted with great satisfaction as is the fact that the Railway subordinates were granted rewards for detection. This co-operation must be fostered, and the value of the property actually seized need not be taken into account in fixing the amount of the rewards. Sandal cases, which are becoming increasingly common, are difficult of detection and the policy in respect of rewards to informers should be a liberal one.

122. The existing sandal transit rules have proved inadequate for the protection of this valuable product and other alternatives are being explored.

123. In connexion with protection generally it is felt that there is insufficient special and surprise patrolling. Special permanent patrol parties achieve nothing, but sudden and secret patrols by the Range Officer and the subordinates of neighbouring beats are most effective and Conservators should see that these are carried out

frequently. The policy of the department must be to see that the public are afforded adequate means of obtaining, legally, their requirements in the way of forest produce and that offenders are not spared. The least important forests have been removed from departmental control and the rest must be protected at all costs. Subordinates of all classes must be judged by the condition of their charges.

(x) PROTECTION FROM FIRE.

124. Experience has shown that early burning affords no general solution of the problem of fire protection. The difficulties of carrying out the work efficiently, the short and broken time within which the operation is possible and the amount of supervision required make it a process which can only be applied to a very limited extent. It is also expensive to carry it out effectively. The method is now principally confined to the burning of grass along outer boundaries and internal lines of communication, though in some areas of particular importance and where complete protection is not yet possible, for example, the Nallamalais, the method will still be made use of, but on a scale which will allow of supervision and will ensure effective work.

125. The area over which special fire protection, other than early burning, was attempted was 4,020 square miles of which 367 square miles (9·1 per cent) were damaged by fire, the figures for the previous year being 3,893 square miles, 410 square miles and 10·5 per cent respectively. The bulk of the damage by fire was in the First Circle, as in the previous year, the percentage of the area burnt being 23 per cent. The high percentage is reported to be due mainly to the Koyas, Reddis and other hillmen in the Vizagapatam and Godavari districts.

126. The expenditure on special protection during the year was Rs. 32,342, or Rs. 8 per square mile as against Rs. 31,897 in the preceding year.

127. Rewards, amounting to Rs. 2,933, were distributed to the Khonds in Ganjam, to the Koyas and Reddis of Upper Godavari and to the settlers of the Peddapur Agency in Lower Godavari for assistance given in fire protection; but it is to be feared that, particularly in Godavari, these rewards mean little to the people who, at the time when their help would be of use, are in no condition to afford it and on a return to sensibility, they can hardly be conscious of the reasons for which rewards are pressed upon them. The matter is one which the Conservator should look into: rewards are not to be given as a matter of course and should only be paid where protection is effective.

128. Officers are too diffident about recommending to closure to grazing of burnt areas. If such a practice is persisted in, there can be no doubt that it will result in vast improvement in protection. Experience has shown this. But closure must be prompt, must extend over two seasons and must be closely supervised by the District Forest Officers.

(XI) PROTECTION AGAINST INJURIES FROM NATURAL CAUSES.

129. The defoliation of teak plantations continues and investigations into methods of control continue under the supervision of the Forest Research Institute. Pigs have given considerable trouble in the Wynaad by uprooting young planted teak.

130. A borer attacking the young shoots of *Hopea parviflora* in South Kanara has been identified as *Xyleborus morstatti* and remedies have been suggested; the Conservator does not say whether they have been adopted.

131. From the First Circle it is reported that the prickly-pear menace is dealt with by spraying with arsenic. Spraying will do little good; if arsenic must be used, stabbers must be obtained but the correct method of control is by biological means.

132. Spike disease in sandal has made its appearance in the Nilgiris for the first time; the work being done on this is referred to elsewhere.

(XII) FOREST PANCHAYATS.

133. The working of the reserved forests handed over to panchayat management is reported on by the Board of Revenue in whom their management is vested. The total area handed over up to the 31st March 1929 was 3,421 square miles. The work of organizing panchayats was complete except for one reserve in the West Godavari district, Upputeru Block II, and proposals for the retransfer of this reserve to departmental management are now under the consideration of Government.

134. In consequence of the transfer of the ryots' forests to the Revenue Department, the Sarvasiddhi range in Vizagapatam, the Ellore range in Lower Godavari, the Kadiri range in Anantapur and the Owk range in the West Kurnool division were abolished during the year and proposals have been submitted to Government for the reduction of the Foresters' and Forest Guards' cadres from 655 and 2,290 to 475 and 1,541, respectively.

135. The results of the working of the grazing panchayats under the forest village system in the Mettupalaiyam range of Coimbatore

were not satisfactory and the system was abolished. The system contained inherent defects which could, however, have been corrected, but, as limited grazing and the constitution of blocks are not permitted, nothing can be done.

136. The forest village system in South Kanara is reported to have worked fairly satisfactorily, while the considerable concessions granted in that district in respect of the removal of manure leaf, etc., are reported to have been abused—the question of cancelling the concessions, which are believed to have been ill-advised, is under consideration.

(XIII) FOREST COLLEGE.

137. Mr. C. R. F. Williams continued as Principal of the College throughout the year. Twenty-six students passed out of the College in 1929 ; of these, eleven were from the Central Provinces, 4 from Bombay, 1 from Bihar and Orissa, 1 from the Orissa Feudatory States and 2 from Hyderabad in addition to 7 Madras Government stipendiary students. One student from the Central Provinces obtained Honours and the remaining 25 students secured Higher Standard certificates. There were no failures. The examination results were satisfactory.

There are now no Madras students at the College, appointments of Ranger being in abeyance until a surplus is absorbed. It will be necessary to re-commence the training of local subordinates in 1931.

(XIV) VERNACULAR TRAINING SCHOOLS.

138. Vernacular Training Schools for the instruction of the subordinate staff were held, in the First, Second, Fourth and Sixth Circles. The results were satisfactory, but it is perpetually necessary to draw attention to a tendency to make the training too theoretical at the expense of the practical work with which men of this class will be solely concerned, and to teach them, indifferently, matters which they should never be called upon to perform. Besides the subordinates of this Presidency, 5 students from Bihar and Orissa were trained in the Ganjam school.

(XV) FINANCE.

139. The total revenue (without allowance for the commercial concerns) amounted to Rs. 58·94 lakhs as against Rs. 51·28 lakhs in the previous year, the expenditure being Rs. 45·85 lakhs as compared with Rs. 49·12 lakhs.

140. In spite of a decrease of Rs. 1·55 lakhs in the revenue for sandalwood, the sales of produce removed by Government agency increased by Rs. ·76 lakh. There was an increase under "Timber"

(2·37 lakhs) due to extended timber and sleeper sales. The revenue realized on produce removed by contractors and purchasers increased by Rs. 2·48 lakhs.

141. Expenditure on works (including capital expenditure outside the commercial concerns) increased by Rs. 0·18 lakh. There was a decrease of Rs. 0·54 lakh on establishments (including the Engineering branch) which was mainly due to further reduction of staff consequent on the handing over of reserves to panchayats. Expenditure in England increased by Rs. 0·29 lakh.

142. The trading account exhibits the financial position of the department for the year and shows the net profit to be Rs. 21·14 lakhs, an improvement of some Rupees eight and a half lakhs over the previous year.

I. Trading Account.

	Lakhs. Rs.		Lakhs. Rs.
Stock of timber, etc., in depots on 31st March 1928	2·97	Stock of timber, etc., in depots on 1st April 1929	4·09
Stock of tools and plant on 31st March 1928	5·35	Stock of tools and plant on 1st April 1929	7·06
Revenue outstanding on 31st March 1928	8·39	Revenue outstanding on 1st April 1929.	9·63
Working expenditure of the year ..	40·61	Sales of the year	58·94
Good debts (advances) on 31st March 1928	0·18	Good debts (advances) on 1st April 1929	0·19
Gross profit	22·41		
Total ..	79·91	Total ..	79·91

II. Interest.

	Lakhs. Rs.
(1) Capital expenditure up to the end of 1927-28 (excluding commercial concerns)	26·91
Capital expenditure during 1928-29	5·07
	31·98
(2) Interest on capital at 5·3 per cent	1·69
III. Depreciation.	
(3) Depreciation on tools and plant at 5 per cent ...	0·35
IV. Profit and Loss Account.	
Gross profit as per table I	22·41
Deduct totals of tables II and III (1·69 plus 0·35)	2·04
Net Profit ...	20·37

143. The above figures exclude the financial results of the years' working of the Russellkonda Saw Mill, the Chenat Nair,

Nilambur, and the Mount Stuart commercial concerns which were as follows:—

		Rs.
Russellkonda	+	18,755
Chenat Nair	—	45,321
Nilambur	+	1,28,788
Mount Stuart	—	24,642

Together, the four works showed a profit of Rs. 0·77 lakh making the total profit for the year Rs. 21·14 lakhs without credit being taken for free grants of grazing and other produce (Rs. 1·8 lakhs) or on account of the protection of irrigation sources and other national interests. On the other hand general pension charges, the cost of stationery and other small items are omitted from the account.

(XVI) GENERAL.

144. Jungle tribes, as usual, continued to be employed by the Department and were afforded facilities for cultivation in reserved forests in some districts. Rupees 26,832 was a charge against the forest budget on account of reclamation work among the Chenchus of Kurnool. They number 4,349 in the three forest divisions of the district. Of the sum named half was spent on providing facilities for education. The matter of continuing work on the present lines is under consideration: there can be no doubt that some progress has been made in teaching these people to become useful members of society, but it is a slow process and it may be possible usefully to revise in some particulars the means now adopted. Useful forest work is provided for the Chenchus, who earn considerable amounts of money: for example, the working males of West Kurnool are reported to have averaged Rs. 15·3 a month in the year under reference, those of East Kurnool Rs. 6·8, and of South Kurnool Rs. 41·5. The average earnings ten years ago were placed at Rs. 4·7.

145. Mr. Wimbush acted as Chief Conservator of Forests from the 8th August 1928 to the 10th April 1929, during the absence of the writer on deputation with the Third British Empire Forestry Conference in Australia and New Zealand and on leave.

146. The Chief Conservator desires to place on record his appreciation of the loyal help rendered by all ranks of the department at a critical time in its history. It is believed that substantial progress is being made, progress which would be impossible without the general and loyal co-operation of all classes serving in the department.

R. D. RICHMOND,
Chief Conservator of Forests.

AN ELEPHANT ASSISTING A TIMBER-CART AT MOUNT STUART.

SUMMARY OF PROGRESS OF FOREST ADMINISTRATION IN THE MADRAS PRESIDENCY DURING THE FIVE YEARS 1924-25 to 1928-29.

The following is a summary of the progress in Forest Administration in the Madras Presidency during the quinquennium ending on the 31st March 1929.

2. The quinquennium has seen the completion of the process of handing over to panchayat management the areas of reserved forest deemed to be of lesser importance. Five years ago 858 square miles were allotted to such management, an area which has been increased to 3,421 square miles. The control of the forests is now vested in the Board of Revenue and no technically trained officers are concerned in their management.

3. The balance of reserved forests (15,493 square miles) remaining under the control of the Forest Department has been very roughly classified into areas expected to be remunerative and those the principle function of which is thought to be protective. In the period 129 square miles have been disreserved for cultivation and the growing of plantation products.

4. The reduction of the area controlled by the Forest Department has led to retrenchments of staff, not yet fully effected, pending the absorption into the revised cadres of those who were surplus to the revised requirements.

One territorial circle, seven divisions and twenty-one ranges, in addition to the consequential adjustment of the minor clerical and subordinate posts, have been abolished. One new Conservator's Circle, for the preparation and control of working plans and sylvicultural research has been constituted and does valuable work. The sanctioned cadre of the Imperial Forest Service remains at 64, but five posts are held in abeyance. The actual number serving on the 31st March 1929 was 56.

The Provincial service has been reduced from 42 to 35.

The Indianization of the Imperial Forest Service has made considerable progress. On 31st March 1924 the actual strength of the service was 51, of which ten were Indians directly recruited and seven were promoted from the Provincial Service. On 31st March 1929, of a total strength of 55, 17 were Indians directly recruited and seven were promoted officers.

Of 11 recruits who joined in the quinquennium, eight were Indians.

Three posts of Utilization Officer, and an Economist for research and sales in respect of major and minor produce were formed—of these, that of Economist has since been abolished, it being found that his functions would be more properly allotted to Utilization.

Two Forest Engineers, one on a temporary engagement, have been newly employed.

5. The construction of office and residential buildings which were previouly executed by the Public Works Department were carried out departmentally under a Forest Engineer, a temporary post which was abolished on the completion of this class of work. Nine headquarter residences for District Forest Officers were built by this agency.

6. The non-co-operation movement having subsided, the administration of forest law was restored to more normal conditions.

8. *Development.*—The period has been one of experiment and research in the direction of the fuller exploitation (largely by mechanical means) and utilization of the evergreen forests of the West Coast and of the greater utilization of the produce, hitherto largely wasted, of fellings in the deciduous forests which it was thought could be marketed profitably in sawn form.

Also cruising and mapping over 93,174 acres, principally in the evergreen areas, was completed by the Engineering branch and valuable data, on which to base working plans, have been collected, even if the results of these enumerations do not support the somewhat optimistic first estimates of the timber available.

A saw mill and box manufacturing plant was installed at Olavakkot in 1926 for the purpose of marketing the evergreen timber from the Chenat Nair forests, which could not be sold profitably in the log form. To this mill was subsequently added a kiln seasoning plant. Efficiency has increased all round, but the necessarily high cost of extraction and the low average price of the products have made it apparent that this form of working cannot be made to pay and it has recently been decided to close down the work. That part of it which was concerned with the extraction in hand sawn form of sleeper and other woods is profitable and will be continued.

Four other saw mills were installed; one at Beypore, to deal with Nilambur teak, another at Pollachi (subsequently removed to Top Slip) to deal with the Mount Stuart timber unfit for sale in the log, a third at Chedleth to deal with the timber of the same class in the Wynaad and a fourth at Parappa for timber from the South Mangalore forests. It is probably more profitable to sell the teak from Nilambur in log form and the other mills for one reason or another do not promise success.

The Russellkonda Saw Mill installed in 1922 worked until July 1928 when it was closed down. All the timber within economic distance had been extracted and further, the quality of timber acceptable to the mill was so high that felling on an unwarranted scale was necessary to keep it going.

The question of installing a Three-Ply plant is under the consideration of Government as is also a proposal for utilizing the Eta reed in the Papanasam forests of the Tinnevelly district for paper and pulp manufacture. Towards the end of the quinquennium the exploitation of the evergreen forests by light selection fellings, combined with the hand sawing of sleepers and other forms of timber was undertaken. This appears to be capable of considerable development.

In the last quinquennium no sleepers were supplied to the railways—in 1928-29 the number supplied departmentally was 54,000. Extraction is undertaken locally, the Forest Utilization Officer organizing the sales and passing the sleepers for the railway. This arrangement works smoothly.

A start has been made in the cultivation of lac. It is now established in one locality in North Salem and will be extended elsewhere. The operations of the Deputy Forest Utilization Officer are not spectacular, but there is no doubt that he is accomplishing something in inducing the traders to produce

the various items in better form and to grade them, while he is also able to place purchasers in touch with the departmental contractors.

There is an increasing import of wattle bark into India: a considerable area of forest land for growing this valuable tanning agent has been granted to a private party in the Nilgiris and it is likely that this industry will also develop in the Palni hills.

9. *Exploitation.*—The quantity of timber extracted departmentally from reserved forests in 1923-24 was 25,000 tons, while that so dealt with in 1928-29 was 38,000 tons, an increase of 50 per cent. The total yield of timber and fuel from reserved forests in charge of the Forest Department was 368,400 tons in 1928-29 or slightly less than the five years previously. This is accounted for by the transfer of very large areas to panchayat control.

The yield per acre over the total area of forests under the Forest Department has increased by 15 per cent but stands at the low figure of 1·81 c. ft. per acre.

Timber from reserved forests under departmental control increased from 52,580 tons to 54,180 tons, the yield of timber alone per acre of reserved forests under departmental control increasing by 20 per cent.

Proposals for leasing the bamboo forests in Upper Godavari to a paper manufacturing concern at Rajahmundry and for supplying soft-woods for a match factory in the same place are under the consideration of Government.

An offer has been received for leasing the Eta reed in Tinnevelly for the manufacture of pulp and paper.

The contract with Messrs. W. W. Howard Brothers & Co. for the sale of Indian timbers in Europe was terminated in December 1926 and the appointment of Messrs. Pierce, Leslie & Co., Calicut, as overseas agents for the sale of Madras timbers, is under the consideration of Government.

10. *Forest Panchayats.*—The Forest Department ceased to be concerned with the organization and administration of Forest Panchayats.

The area under Panchayat management at the end of the quinquennium under review is 3,421 square miles as against 982 square miles at the end of the previous quinquennium.

At the close of 1923-24, the Forest Village System was in force in South and West Vellore, North and South Coimbatore, Palghat, East and South Salem and in South Kanara divisions. But the working was unsatisfactory and the system had to be abandoned in all districts except Coimbatore and South Kanara.

11. *Sylviculture and research.*—The problem of regeneration in the evergreen forests is not the easy matter which was supposed when the last review of this kind was written and it is becoming increasingly evident that it must be some years before a satisfactory technique is evolved. There is a good prospect of success with sowings recently undertaken in the gaps made by light selection fellings in this class of forest and there is no difficulty in establishing Hopea Parviflora, cheaply, in suitable localities, under moderate shade, if the later opening out is not done too drastically.

Difficulties, accentuated by the hasty introduction of new methods in place of those which had originally given good results, have been encountered

in re-establishing teak on old plantation sites in Nilambur, but these are on the way to be solved.

There has been a considerable extension of the clear felling method over areas of mixed teak forest suitable for planting. In the quinquennium 1,423 acres of teak plantation were formed, after clear felling and 17,099 acres of other plantations were formed.

The need for an underwood in the teak plantations has led to considerable experimental work, most of which has given disappointing results, and it is no doubt the case that a natural underwood will provide what is needed if the necessity for it is realized in the weeding and tending operations and if the woody species coming in naturally, as they do, are not destroyed as a matter of course. Similarly, a mixture of other species, which is so desirable in a teak forest, can be obtained by the exercise of restraint rather than by the adoption of expensive measures.

A good deal of work has been done with sandalwood, principally in the direction of the establishment of groups of trees, or small areas artificially regenerated, from which the species may be expected, as it does, to spread by natural means. Some of this work, however, is of a desultory nature and requires to be better organized.

Spike disease in sandal is still a matter for great concern. With the exception of very few localities, it is now general and this valuable product is of necessity being overexploited merely by the removal of dead trees. Valuable research work on this problem is conducted by the Indian Institute of Science.

Better attention has been paid to improving the stocking of the smaller timber and fuel areas and more will be possible when a second sylvicultural research officer is appointed.

12. *Changes in area.*—The areas of reserved forests and reserved lands at the end of the previous quinquennium and the quinquennium under review are compared below : —

	At the end of the previous quinquennium.	At the end of the quinquennium under review.
	SQ. MILES.	SQ. MILES.
Reserved forests	18,956	18,914
Reserved lands	172	343
Total ...	19,128	19,257

Of the 18,914 square miles of reserved forests, 15,493 square miles consist of departmental forests and 3,421 square miles of ryots' (panchayat) forests under the control of the Land Revenue Department. The decrease in the area of reserved forests is due to disreservation. The increase in the area of reserved lands was due chiefly to the reservation of blocks in the Balliguda Agency in Ganjam and in the Rampa Agency in the Lower Godavari division.

13. *Forest settlement.*—The balance under settlement at the commencement of the quinquennium was 127 square miles. About 65 square miles were settled during the period under review and about 56 square miles matured for settlement. Settlement operations were in progress in respect of about 118 square miles at the close of the period.

14. *Demarcation.*—The total length of artificially marked boundaries at the end of the quinquennium was 22,602 miles as against 31,132 miles at the end of the previous quinquennium, the decrease being chiefly due to the exclusion of the boundaries of ryots' forests handed over to panchayats.

15. *Surveys.*—A Survey of India Party traversed the boundary between the Bastar State and the Nugur taluk in Upper Godavari and surveyed five reserved forests in Polavaram and Ellore ranges in Lower Godavari. The Party also carried out a survey on the 2" scale of Kondapalli reserved forests in Guntur and of six reserves in Lower Godavari and 13 blocks of about 116 square miles proposed for reservation in the Rampa Agency.

The Madras Survey Parties also surveyed the outer boundaries of the Mangrove forests in Guntur and Lower Godavari and the forests in the Shevaroys, Attur, Salem, Namakkal and Omalur taluks in Salem.

16. *Working plans.*—At the beginning of the quinquennium, most of the existing working plans were out of date or were merely simple and rough arrangements for working, while many of the valuable timber forests had no working plans at all. During the period under review (in 1925), matters have been put on a more satisfactory basis by the creation of a working plans circle with a staff of officers. This circle has drawn up working plans for some of the more valuable forests, viz., Bolampatty Valley forests, the Punachi forests, the Wynaad forests and revised working plans for the Walayar, Mudumalai and Nilambur forests. It is engaged on the preparation of revised working plans for the Mount Stuart and the Ghumsur Sal forests and of original plans for South Mangalore and the Nallamalais of Kurnool and the sandal areas in North Coimbatore.

The Logging Engineer was engaged on mapping and cruising in Chenat Nair and the Silent Valley forests in Palghat, the Someshwar and Andar forests in South Kanara, the Karian Shola and Kal Ar Valley forests in the Anamalais and the New Amarampalam forests in Nilambur and the Mount Stuart forests in South Coimbatore. An area of 93,174 acres has been cruised and mapped. This is really a branch of working plans and from data collected plans will be evolved.

In addition, Divisional Officers have prepared plans for the less valuable forests to carry on until the services of the main organization are available. Thus working plans for East and South Kurnool, Chittoor, Vellore and Central Salem divisions have been completed. The working plans for Anantapur and South Cuddapah are nearing completion and working plans for West Kurnool and North and South Salems are in progress.

The Working Plans Conservator scrutinizes all plans whatever the agency of preparation.

The areas covered by working plans increased in the period from 6,258 square miles to 8,768 square miles.

The final scrutiny of all control records is carried out by the Working Plans Conservator with the result that control of working plans prescription is much improved.

17. *Communications and buildings.*—The average annual expenditure on communications and buildings and other works during the last two quinquennia were as follows :—

Year.	Roads.		Buildings.		Other works.	
	Capital.	Repairs.	Capital.	Repairs	Capital.	Repairs.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Average for the period from 1919-20 to 1923-24	1,43,161	88,830	1,11,114	70,063	8,866	4,086
1924-25	1,30,897	1,11,178	1,47,726	65,365	12,053	4,334
1925-26	47,775	1,01,822	71,584	70,229	28,363	5,911
1926-27	1,42,035	1,07,073	1,36,994	73,571	14,926	4,838
1927-28	36,297	1,82,021	2,34,968	70,550	21,856	4,817
1928-29	89,259	99,914	1,12,475	66,225	7,983	4,070
Total for the period 1924-25 to 1928-29	4,46,263	6,02,008	7,03,747	3,45,940	80,221	23,970
Average for the period 1924-25 to 1928-29	89,253	1,20,402	1,40,749	69,188	16,044	4,794

The increase in expenditure on repairs of roads was chiefly due to the large amounts spent on the maintenance of the Olavakkot-Elival road and the Amarampalam-Anapadi road. The increase in the capital expenditure on buildings was mainly due to the construction of the saw mill buildings at Olavakkot and nine residential buildings for District Forest Officers.

18. *Forest offences.*—The average annual number of forest offences decreased from 29,021 to 27,680 as shown below :—

Year.	Injury to forests by fire.	Unauthorized fellings.	Unauthorized grazing.	Other offences.	Total.
1924-25	1,120	22,186	7,406	1,452	32,164
1925-26	1,355	20,212	6,910	1,747	30,224
1926-27	955	18,306	4,723	1,337	25,321
1927-28	1,353	18,728	4,737	1,158	25,976
1928-29	1,060	18,598	3,773	1,283	24,714
Average ..	..	..	..	..	27,680

The decrease in the number of offences under the various heads was due to the transfer of the minor forests to panchayat management.

19. *Fire protection* —The average area under systematic fire protection amounted to 16,822 square miles against 17,040 square miles in the previous period. Experience has shown that the system of early burning introduced during the last quinquennium affords no general solution of the problem of fire protection. The difficulties of carrying out the works efficiently, the short and broken time within which the operation is possible and the amount of supervision required make it a process which can only be applied to a very limited extent. It is also expensive to carry it out effectively. The method

is now principally confined to the burning of grass along outer boundaries and internal lines of communication. The decrease in the area under fire protection is due to the transfer of the ryots' forests to panchayats. The expenditure under fire protection fell from Rs. 59,929 in 1923–24 to Rs. 42,509 in 1928–29.

20. *Protection from cattle.*—One-eighth of the area of departmental forests was closed to grazing during the year 1928–29, while about one-fifth of the total area was closed during 1923–24. The number of animals permitted to graze on payment in reserved forests and reserved lands increased from 2,141,770 at the beginning of the period to 2,726,350 (1,672,257 animals in departmental forests and 1,054,093 in ryots' forests) in the closing year. The increase is a matter for serious concern, in the interests of the cattle as well as of the forest. All accessible areas are overgrazed, principally by a type of animal which is of little or no good to the country.

21. *Yield and outturn.*—The following table shows the average annual outturn of the forests for the two periods :—

Period.	Timber.	Fuel.	Bamboos.	Minor forest produce.
	C. FT.	C. FT.	RS.	RS.
1919-20 to 1923-24	4,751,000	20,306,000	3,49,372	18,89,604
1924-25 to 1928-29	5,081,000	18,782,000	3,85,433	40,12,094

The increased output of timber is primarily due to the development of departmental timber operations. The decrease in fuel and minor forest produce was due to the transfer of the ryots' forests.

22. *Financial results.*—The average financial results of the last two periods were as follows :—

——	Revenue.	Expenditure.	Surplus.
	RS.	RS.	RS.
Average for the period of 1919-20 to 1923-24.	52,25,383	42,40,059	9,85,324
1924-25	55,69,681	51,17,796	4,51,885
1925-26	51,70,521	48,15,499	3,55,022
1926-27	55,29,926	50,57,609	4,72,317
1927-28	51,28,434	49,12,604	2,15,830
1928-29	58,94,247	45,84,550	13,09,698
Total for the period 1924-25 to 1928-29 ..	2,72,92,809	2,44,88,058	28,04,752
Average for do.	54,58,562	48,97,612	5,60,950

The average gross revenue rose by more than two lakhs of rupees, but expenditure increased by more than six lakhs with the result that the surplus was reduced by four lakhs. The increase in the gross revenue was mainly due to the extraction of large quantities of sandalwood from spiked trees and to extended sleeper and timber sales. The increase in expenditure

was primarily due to the construction of a number of residential buildings by the Forest Department (previously budgeted for by the Public Works Department), the construction of roads, extended timber operations, the mapping and cruising projects, the expansion of the Engineering Branch and the deficits on the working of the saw mills. There has however been considerable reduction in establishment charges through the reduction of division and range charges and subordinate staff due to the transfer of ryots' forests to panchayats.

23. *Forest education.*—The last Imperial Officer trained in Great Britain joined in 1927 and the first trained at Dehra Dun in 1928.

One hundred and thirty-seven students passed out of the Madras Forest College, Coimbatore, during the period, of whom 5 obtained Honours certificates, 123 Higher Standard and 9 Lower Standard certificates. Of these, 32 were Madras Government stipendiary students and the rest were from Ceylon (4), Central Provinces (55), Bombay (26), Orissa Feudatory States (4), Bihar and Orissa (6), Hyderabad (7), Keonjahar State (1), and private (2).

Vernacular training schools with a six months' course have been held for the training of foresters and forest guards in the I, III (old), IV, and V Circles in the first year and thereafter annually in the I, II, IV and V Circles and their working was satisfactory. Besides the subordinates of this Presidency, students from Bihar and Orissa, and from Native States were also trained in the schools held in Ganjam.

24. *Hill Tribes.*—The Khonds in Ganjam, the Koyas and Reddis in the Godavaris and the hill tribes in Vizagapatam continued to help the department in fire protection in return for the concession of free removal of forest produce besides which money rewards were also granted. In Vizagapatam and Coimbatore the hill tribes were also afforded facilities for cultivation within reserved forest. In Nellore, the Yanadis were employed on the collection of minor forest produce. The reclamation of the Chenchus of Kurnool is being carried on by the department and a sum of Rs. 26,832 was spent on them in 1928–29 about half of which was devoted to their education. Work is provided as an alternative to crime and some progress has undoubtedly been made. But the process is very slow, and is not helped by the disinclination or inability of these people to settle down to an agricultural life.

R. D. RICHMOND,
Chief Conservator of Forests.

[Appendices

APPENDICES.

APPEN

APPENDIX A.—Comparative statement of numbers and origins

District.	A. Fires caused by accident or through carelessness in burning fire lines.		B. Fires entering forests by crossing exterior fire lines.		C. Fires beginning inside the Owing to carelessness or accident. By workmen engaged in the forests or by purchasers of forest produce and by hay cutters.		By villagers, travellers, etc., passing through the forests.		By railway engines.		By lightning or by fire balloons.	
	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
First Circle.												
Ganjam	2	906	21	19,794	3	393	8	600	..	..	..	..
Vizagapatam ..	..	..	1	9	5	182	20	12,075	..	..	..	..
Godāvari, Upper.	4	61	6	29,470	3	5,760	25	92,470	..	..	..	..
Do. Lower..	2	35	2	5,746	..	..	44	3,027	..	..	..	..
Guntūr	..	..	1	1,200	..	..	20	1,294	..	..	..	..
Nellore	1	100	1	300	1	1	2	241	..	..	..	..
Total ..	9	1,102	32	56,519	12	6,336	119	109,707	..	..	..	..
Second Circle.												
Anantapur ..	..	..	3	1,385	..	..	1	50	..	..	..	..
Kurnool, East ..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	10	3,040	..	..	4	2,068	12	3,493	2	560	..	..
Do. West ..	..	..	3	305	..	..	11	1,949	4	665	..	..
Cuddapah, North.	..	..	14	5,722	..	..	9	2,240	..	..	..	..
Do. South..	..	..	..	..	1	300	4	1,671	..	..	..	..
Total ..	10	3,040	20	7,412	5	2,368	37	9,403	6	1,225	..	..
Fourth Circle.												
Chittoor	..	..	1	200	..	..	1	120	..	..	..	..
Vellore	1	3	2	92	5	2,080	20	545	2	1	..	..
Salem, North ..	..	..	16	4,894	..	..	..	..	..	..	..	..
Do. Central ..	..	..	..	..	..	..	9	563	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	1	3	19	5,186	5	2,080	30	1,228	2	1	..	..
Fifth Circle.												
Kollegal ..	..	..	..	..	..	..	4	5,560	..	..	..	..
Coimbatore, North.	1	10	4	660	1	60	39	6,732	1	25	..	..
Do. South.	1	300	2	160	4	179	7	470	..	..	..	..
Madura	..	..	10	451	..	..	..	..	..	..	..	..
Tinnevelly ..	..	..	15	582	1	5	4	197	..	..	3	43
Total ..	2	310	31	1,853	6	244	54	12,959	1	25	3	43

* Includes two fires of 160 acres in the 1927-28 early-burnt area in Kurnool West

Note.—The return shows fires during the calendar year in areas under Special or

DICES.

of fires that occurred during the calendar year 1928.

reserves or fire-traced areas.

By intentional firing.								Causes unknown.		Total of A, B and C and causes unknown.	
In order to obtain new grass.		In order to turn out game or to reduce cover.		Maliciously fired.		Total of C.					
Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
..	..	2	420	9	3,814	22	5,227	..	..	45	25,927
..	..	..	..	..	..	25	12,257	1	87	27	12,353
6	7,690	10	16,499	2	640	46	123,059	16	39,741	72	192,331
..	..	..	..	..	..	44	3,027	133	3,020	81	11,828
2	28	..	..	..	..	22	1,322	..	..	23	2,522
..	..	..	..	1	2	4	244	2	178	8	322
8	7,718	12	16,919	12	4,456	163	145,136	52	43,026	256	245,783
30	9,154	1	280	1	300	33	9,784	55	23,388	91	34,557
..	..	..	..	..	..	..	..	10	814	10	811
1	402	..	..	..	..	19	6,523	9	1,535	38	11,098
17	6,570	7	785	..	..	39	9,969	11	2,126	*53	*12,400
11	4,890	..	..	39	20,806	59	27,936	1	360	74	34,018
13	1,264	..	..	8	1,218	26	4,453	6	928	32	5,381
72	22,280	8	1,065	48	22,324	176	58,665	92	29,148	298	98,265
25	6,297	..	..	..	..	26	6,417	25	3,184	52	9,801
74	3,035	1	58	6	45	108	5,764	24	1,039	135	6,898
..	..	..	..	..	..	..	..	66	24,984	82	29,878
4	272	..	..	..	..	13	835	111	6,572	124	7,407
..	..	..	..	..	..	..	..	47	2,122	47	2,122
103	9,604	1	58	6	45	147	13,016	273	37,901	440	56,106
2	570	..	..	1	15	7	6,145	46	18,029	53	24,174
14	3,615	..	..	..	..	55	10,432	114	7,342	174	18,444
2	60	3	89	..	..	16	798	5	178	24	1,436
..	..	..	..	2	138	2	138	115	6,541	127	7,130
1	5	..	..	..	..	9	250	61	4,142	85	4,974
19	4,250	3	89	3	153	89	17,763	341	36,232	463	56,158

Division and not included in Form 31.
General protection and during the official year in the case of areas early burnt.

Appendix A.—Comparative statement of numbers and origins

District.	A. Fires caused by accident or through carelessness in burning fire lines.		B. Fires entering forests by crossing exterior fire lines.		C. Fires beginning inside the							
					Owing to carelessness or accident							
					By workmen engaged in the forests or by purchasers of forest produce and by hay cutters.		By villagers, travellers, etc., passing through the forests.		By railway engines.		By lightning or by fire balloons.	
	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Sixth Circle.												
Mangalore, North.	..	..	14	326	2	187	8	65	..	..	..	..
Do. South.	..	..	17	192	..	..	6	64	..	..	..	..
Wynaad	..	..	2	553	..	..	..	..	..	..	..	..
Nilambur ..	1	1	..	..	2	1	3	22	..	..	..	..
The Nilgiris ..	4	251	4	761	2	450	23	1,052	1	90	..	..
Palghat	3	18	3	56	1	3	1	40	..	..	..	..
Total ..	8	270	40	1,888	7	641	41	1,843	1	90	..	..
Parlakimedi Maliahs ..	.	..	8	1,168	..	..	1	1	..	..	..	..
Grand Total, Presidency ..	89	4,725	150	74,026	85	11,669	282	135,141	10	1,341	3	48

of fires that occurred during the calendar year 1928—*cont.*

reserves or fire-traced areas.											
By intentional firing											
In order to obtain new grass.		In order to turn out game or to reduce cover.		Maliciously fired.		Total of C.		Causes unknown.		Total of A, B and C and causes unknown.	
Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
..	..	..	..	..	..	10	252	6	187	30	765
..	..	..	..	..	..	6	64	21	650	44	906
..	..	..	..	..	..	..	..	4	200	6	753
..	..	..	..	..	..	5	23	..	..	6	24
2	520	..	..	..	..	28	2,712	46	4,181	82	7,905
3	15	..	..	..	..	5	58	17	317	28	449
5	535	..	..	..	..	54	3,109	94	5,535	196	10,802
..	..	..	..	..	..	..	..	27	3,052	36	4,221
207	44,387	24	18,131	69	26,978	629	237,689	879	154,894	1,689	471,335

Appendix B.—Comparative statement of impounded cattle during 1928-29.

Districts.	Number of cattle impounded.		Average for three years ending 1927-28.
	1927-28.	1928-29.	
First Circle.			
Ganjam	3,522	1,206	2,617
Vizagapatam	537	463	520
Godavari, Upper	786	138	791
Do. Lower	1,177	1,422	1,297
Guntur	6,778	3,935	11,896
Nellore	2,985	1,806	8,489
Total ..	15,785	8,970	25,610
Second Circle.			
Anantapur	10,431	5,333	16,585
Kurnool, East	3,803	1,622	5,348
Do. South	4,073	4,373	6,197
Do. West	7,356	6,414	7,892
Cuddapah, North	3,650	2,443	3,317
Do. South	1,674	3,509	2,144
Total ..	30,987	23,694	41,483
Fourth Circle.			
Chittoor	2,527	2,282	3,699
Vellore	6,302	5,199	6,093
Salem, North	1,672	1,298	1,651
Do. Central	3,036	3,406	3,886
Do. South	1,170	407	1,983
Total ..	14,807	12,592	17,812
Fifth Circle.			
Kollegal	3,467	2,655	3,339
Coimbatore, North	3,008	2,480	3,238
Do. South	564	267	737
Madura	4,764	3,761	5,795
Tinnevelly	1,486	1,691	1,847
Total ..	13,289	10,854	14,956
Sixth Circle.			
Mangalore, North	124	150	130
Do. South	324	301	289
Wynaad	90	258	129
Nilambur	575	243	554
Nilgiris, the	690	1,002	903
Palghat	405	317	553
Total ..	2,208	2,271	2,558
Parlakimedi Maliahs ..	..	106	..
Grand Total, Presidency ..	77,076	58,487	101,919

ANNUAL FORM No. 25.

Forest Department, Madras Presidency.

Area of reserved forests and reserved lands during 1928–29.

ANNUAL

Forest Department,

Area of reserved forests and

Districts.	Area of reserved forests.					
	Area on 1st April 1928.		Added during the year.	Excluded during the year.	Area on 31st March 1929.	
	Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Circle.						
Ganjam	400,114	625	(*a*) 8	..	400,122	625
Vizagapatam ..	196,222	307	(*a*) 376	(*b*) 51	196,547	307
Godavari, Upper ..	531,434	830	..	..	531,434	830
Do. Lower ..	364,446	569	..	(*g*) 900	363,546	568
Guntur	585,598	915	..	(*b*) 3,572	582,026	909
Nellore	523,864	819	(*h*) 1,171	(*b*) 28	525,007	820
Total ..	2,601,678	4,065	1,555	4,551	2,598,682	4,059
Second Circle.						
Anantapur	1,149,05 (*a*) + 2	1,795	..	(*b*) 707 (*c*) 1,347	1,146,999	1,792
Kurnool, East ..	620,743	970	..	..	620,743	970
Do. South ..	417,641	653	..	(*b*) 24	417,617	653
Do. West ..	604,375	944	..	(*b*) 354	604,021	944
Cuddapah, North ..	507,084	793	..	(*d*) 1,171	505,913	790
Do. South ..	440,978	689	..	..	440,978	689
Total ..	3,739,874	5,844	..	3,603	3,736,271	5,838
Fourth Circle.						
Chittoor	503,271·00	786·39	..	..	503,271·00	786·39
Vellore	714,558·00	1,116·49	..	(*a*) 191·94	714,366·06	1,116·26
Salem, North ..	369,671·00	577·50	..	..	369,671·00	577·50
Do. Central ..	619,811·00	968·45	13·55	(*a*) 2,463·07	617,361·48	964·63
Do. South ..	263,338·00	411·46	(*b*) 801	(*a*) 626·06	263,512·94	411·74
Total ..	2,470,649·00	3,860·29 or 3,860	814·55	3,281·07	2,468,182·48	3,856·52 or 3,857

First Circle—

(*a*) Notified under section 16 of the Forest Act (Tiliki Extension Reserved Forest, Ganjam; and Marripakala teak block in Vizagapatam).

(*b*) Disforested under section 24 of Forest Act (Chinnamangalapuram Tope in Vizagapatam, Intern Reserved Forest in Guntur, portion of Allikuli Reserved Forest (19 acres) in Nellore and 9 acres in Chakicherla Reserved Forest, Nellore).

(*c*) Leased forests.

(*d*) Notified under section 26 of the Forest Act.

(*e*) Transferred from reserved land to reserved forest.

(*f*) Notified under section 4 of the Forest Act (Bandapalli and Bologonda blocks in Rampa).

(*g*) Area excluded. (The area of Chintalapudi Reserved Forest in Lower Godavari was wrongly noted as 2,000 acres in previous years. The correct area is 1,100 acres).

(*h*) Area of the portion of Kottur Reserved Forest transferred to Nellore in C.C. F's. No. 6233/B-2-27-3, dated 16th August 1928.

(*i*) Area notified under section 4 omitted to be shown in previous years (Marripakala teak block in Vizagapatam).

FORM No. 25.

Madras Presidency.

reserved lands during 1928-29.

Area of reserved lands.						Total area of reserved forests and reserved lands in square miles.
Area on 1st April 1928.		Added during the year.	Excluded during the year.	Area on 31st March 1929.		
Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.	
(8)	(9)	(10)	(11)	(12)	(13)	(14)
8	..	..	(*c*) 8	..	..	625
(*a*) 1,313 (*i*) 376 (*d*) 14	2	..	(*c*) 376	(*a*) 1,313 (*d*) 14	2	309
..	..	..	..	..	..	830
..	..	(*f*) 6,965	..	(*f*) 6,965	11	579
(*d*) 381	1	..	..	(*d*) 381	1	910
..	..	..	..	..	..	820
2,092	3	6,965	384	8,673	14	4,073
..	..	..	..	..	..	1,792
..	..	..	..	..	..	970
..	..	..	..	..	..	663
..	..	..	..	..	..	944
..	..	..	..	..	..	790
..	..	..	..	..	..	689
..	..	..	..	..	..	5,838
..	..	..	..	..	..	786·39
70 00	0·01	..	..	70·00	0·01	1,116·27
325·00	0·50	..	..	325·00	0·50	578·00
3,803·55	5·94	..	13 55	3,790·00	5·92	970·55
19,302·00	30·16	..	..	19,302·00	30·16	441·90
23,500·55	36·61	..	13·55	23,487·00	36·59	3,893·11 or 3,893

Second Circle—

(*a*) Two acres omitted in totalling the figures in the last year's return are now added.

(*b*) Areas disforested under section 24 of the Forest Act.

(*c*) Excluded as a result of correct computation—Five acres in Moka reserve and 1,342 acres in Kaligira Reserved Forest—(vide G.O. Mis. No. 1182, Development, dated 18th July 1928).

(*d*) 1,171 acres of Kothur Reserved Forest (North Cuddapah Division) transferred to the Nellore Division—vide Chief Conservator's Reference No. 6233/B-2-27-3, dated 16th August 1928.

Fourth Circle—

(*a*) Areas disforested.

(*b*) Alterations due to correct area furnished by the Director of Survey.

Area of reserved forests and

Districts.	Area of reserved forests.					
	Area on 1st April 1928.		Added during the year.	Excluded during the year.	Area on 31st March 1929.	
	Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fifth Circle.						
Kollegal	605,829	947	..	..	605,829	947
Coimbatore, North ..	558,132	872	..	(a) 32	(b) 558,100	872
Do. South ..	250,531	(i) 391	(c) 6	(d) 1	(e) 250,536	391
Madura	448,654	701	..	(d) 10,817 (f) 2	(g) 437,835	684
Tinnevelly . ..	267,157	417	..	..	(h) 267,157	417
Tanjore	6,468	10	..	..	(j) 6,468	10
Total ..	2,136,771	3,338	6	10,852	2,125,925	3,321
Sixth Circle.						
Mangalore, North ..	229,896	359	..	..	229,896	359
Do. South ..	280,563	438	..	..	280,563	438
Wynaad	168,164	263	..	(a) 53	168,111	263
Nilambur	68,822	108	..	..	68,822	108
Palghat	168,110	263	..	(b 212	167,898	262
Nilgiris, the ..	266,216	416	..	(c) 4,195	262,021	409
Total ..	1,181,771	1,847	..	4,460	1,177,311	1,839
Parlakimedi Maliahs.	..	..	..	..	..	..
Grand Total, Presidency.	12,130,743	18,954	2,376	26,747	12,106,371	18,914

Fifth Circle—

(a) Due to adoption of correct areas as notified.
(b) Includes 20,663·74 acres, the area of reserved forests lying within the Mettur revenue district and 26,650·3 acres of the ryots forest.
(c) Due to adoption of correct area as re-notified.
(d) Disforestation.
(e) Includes 3,496 acres of the ryots forests handed over to panchayats.
(f) Due to adoption of correct area as furnished by the Director of Survey, Madras.
(g) Includes 23,747 acres of the ryots forests handed over to panchayats.

reserved lands during 1928-29—*cont.*

Area of reserved lands.						Total area of reserved forests and reserved lands in square miles.
Area on 1st April 1928.		Added during the year.	Excluded during the year.	Area on 31st March 1929.		
Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.	
(8)	(9)	(10)	(11)	(12)	(13)	(14)
..	..	..	..	..	..	947
..	..	..	..	..	..	872
..	..	..	..	..	..	391
..	..	..	..	..	..	684
..	..	..	..	..	..	417
5,992	9	..	..	5,992	9	19
5,992	9	..	..	5,992	9	3,330
..	..	..	..	..	..	359
4,013	6	..	..	4,013	6	444
22	..	..	..	22	..	263
11,510	18	..	..	11,510	18	126
..	..	..	..	..	..	262
49,254	77	..	..	49,254	77	491
(*d*) 2,878	5	..	(*e*) 13	2,865	5	
67,677	106	..	13	67,664	106	1,945
113,375	177	..	68	113,307	177	177
212,637	332	6,965	479	219,123	343	19,257

(*h*) Includes 6,028 acres of the ryots forests handed over to panchayats.
(*i*) Includes 27 square miles of the Tekkadi leased forests.
(*j*) Includes 2,823 acres of the ryots forests.

Sixth Circle—
(*a*) Reduction in area to resurvey.
(*b*) Disforested.
(*c*) Toda putta lands.
(*d*) Excluded from the list of Toda putta lands.

Appendix to Form No. 25.

Showing the areas according to the final reclassification during 1928–29.

Name of forest division.	Class I or Departmental forests.	Class III or Ryots forests.	Total.
First Circle.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Ganjam	625	..	625
Vizagapatam	274	33	307
Godavari, Upper	830	..	830
Do. Lower	470	98	568
Guntur	612	297	909
Nellore	411	409	820
Total ..	3,222	837	4,059
*Second Circle.**			
Anantapur	583	1,209	1,792
Kurnool, East	886	84	970
Do. South	634	19	653
Do. West	856	88	944
Cuddapah, North	752	38	790
Do. South	669	20	689
Total ..	(*a*) 4,380	(*b*) 1,458	5,838
Fourth Circle.			
Chittoor	576	210	786
Vellore	706	410	1,116
Salem, North	568	10	578
Do. Central	733	232	965
Do. South	256	156	412
Total ..	2,839	1,018	3,857
Fifth Circle.			
Kollegal	947	..	947
Coimbatore, North	830	42	872
Do. South	386	5	(*c*) 391
Madura	660	41	701
	(*d*) — 13	(*d*) — 4	(*d*) — 17
Tinnevelly	407	10	417
Tanjore	6	4	10
Total ..	3,223	98	3,321
Sixth Circle.			
Mangalore, North	359	..	359
Do. South	438	..	438
Wynaad	263	..	263
Nilambur	108	..	108
Palghat	252	10	262
Nilgiris, the	409	..	409
Total ..	1,829	10	1,839
Grand Total, Presidency ..	15,493	3,421	18,914

* There are no unclassified reserves in this Circle.

(*a*) Decrease as compared with last year is due to transfer of area to First Circle.

(*b*) Decrease as compared with last year is due to disreservation and correct computation.

(*c*) Includes 27 square miles of the Tekkadi leased forests.

(*d*) Diaforestation.

ANNUAL FORM No. 26.

Forest Department, Madras Presidency.

Progress made in forest settlements during the year 1928–29.

Annual Form No. 26.

Forest Department, Madras Presidency.

Progress made in forest settlements during the year 1928–29.

Name of Forest Division.	Name of forest.	Area in square miles.			Cost during the year.		Entire cost per square mile of area finally settled.	Government notifications of settlement.	
		Finally settled during the year.	In hand at the commencement of the year.	Taken in hand during the year.	In forest accounts.	In other accounts.		Number.	Date.
	First Circle.								
Ganjam ..	Tiliki Extension I	0·01	0·01	..	..	..	..	180	31st May 1928.
Vizagapatam ..	Marripakala Teak Block	0·59	0·59 *	..	..	..	..	370	7th December 1928.
Lower Godavari.	Bologonda Block	..	..	6·17	..	..	..	59	7th February 1929.
(Rampa) ..	Bandapalli Block	..	..	4·71	..	..	..	60	Do.
	Total ..	0·60	0·60	10·88	..	..	..	..	
	Second Circle.†								
Anantapur ..	....	..	..	..	..	Nil.			..
Kurnool, East.	....	..	..	..	..	Nil.	..	..	..
„ South.	....	..	..	..	..	Nil.	..	..	..
„ West.	....	..	..	..	..	Nil.	..	..	..
Cuddapah, North.	....	..	..	..	..	Nil.	..	..	..
Cuddapah, South.	....	..	..	..	..	Nil.	..	..	..
	Total ..	..	..	..	..	..	..	..	
	Fourth Circle.								
Chittoor ..	....	..	..	..	..	..	..	..	..
Vellore ..	....	..	..	..	..	..	..	..	..
Salem North ..	Aiyur reserve Extension No. II	..	0·50	..	..	..	..	9	17th December 1924.

Salem Central	Arana and Thirthagiri reserved lands	..	5·92	..	..	..	..	363	7th July 1909.
	Varanjaram reserve addition	0·02	0·02	..	..	..	..	52	28th January 1929.
Salem South ..	Adukkam-Puducombai	..	7·00	..	..	..	..	(Notified under section 16.)	
	Perumalmalai reserve	..	7·00	..	..	..	..	142	13th May 1925.
	Bailnad reserve	..	16·00	..	..	..	..	162	4th June 1925.
	Total ..	0·02	36·44	..	..	..	..	99	8th March 1926.
	Fifth Circle.							..	
	Nil.								
	Sixth Circle.†								
Mangalore South.	(1) Karindala	..	3·63	..	..	..	..	..	
	(2) Kinnanur	..	1·43	..	..	..	..	..	
	(3) Eleri	..	1·21	..	..	..	..	..	
Nilgiris The ..	(1) Mudumalai and Kumbarakolli	..	74·75	..	..	..	..	..	
	(2) Madnad Reserved Forest addition No. II.	..	0·32	..	..	..	..	..	
	Total ..	..	81·34	..	..	..	..	..	
	Grand Total, Presidency ..	0·62	118·38	10·88	..	..	..	..	

* Omitted to be shown in previous years.

† There was no Forest Settlement during the year in this circle.

‡ (1) The Forest Settlement of first three reserved forests in South Mangalore have been ordered to be kept in abeyance till the resurvey of the taluk is finished.

(2) No. (1) in the Nilgiris is pending with Government although the preliminary forest settlement is over.

(3) No. (2)—The settlement of this is already completed and Section 16 notification of the same was published after the close of the year.

ANNUAL FORM No. 27.

Forest Department, Madras Presidency.

Record of demarcation and maintenance of boundaries during 1928-29.

District.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries still to be demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
								On new works.	On repairs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
First Circle.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	RS. A. P.	RS. A. P.
Ganjam ..	..	(a) 1,375	..	1,375	..	80	1,455	..	..
	(b) 28	73	..	91	..	..	91	792 0 0	..
Vizagapatam ..	..	(c)(d)459	..	459	..	19	478	..	50 0 0
Godavari, Upper ..	75	(a) 595	..	670	15	151	821	(e) 995 0 0	5 0 0
Do. Lower ..	(f) 85	(a) 928	..	1,013	..	81	1,094	1,740 0 0	542 0 0
Guntur	..	(a)(g)878	..	(h) 878	..	272	1,972	..	..
Nellore	..	(a) 461	..	461	..	138	599	(k)44 0 0	..
Total ..	188	4,769	..	4,947	15	741	6,510	3,571 0 0	597 0 0
Second Circle.									
Anantapur ..	..	(a) 500	200	700	..	142	842	..	..
Kurnool, East ..	..	(b) 615	..	615	..	48	663	..	272 0 0
Do. South ..	..	(b) 413	55	468	..	5	473	..	92 0 0
Do. West ..	..	(b) 994	57	1,051	..	100	1,151	..	244 0 0
Cuddapah, North ..	..	(b) 479	285	764	..	13	777	..	75 0 0
Do. South ..	..	(a) 330	25	355	..	62	417	..	..
Total ..	..	3,331	622	3,953	..	370	4,323	..	683 0 0
Fourth Circle.									
Chittoor	1	730	64	795	..	36	831	18 0 0	111 0 0
Vellore	..	1,670	..	1,670	..	39	1,709	..	32 0 0
Salem, North ..	24	681	75	780	..	71	851	323 0 0	153 0 0
Do. Central ..	..	960	122	1,082*	..	15	1,097	..	804 0 0
Do. South ..	..	590	..	590*	..	..	590	..	..
Total ..	25	4,631	261	4,917	..	161	5,078	341 0 0	1,100 0 0

Note for First Circle.

(a) Cleared by subordinates free of cost.
(b) Relates to Balliguda.
(c) The difference between the length shown in columns (3) (5) and (8) of the return and that shown in previous year's return is due to the disreservation of Chinnamangalapuram tope.
(d) Out of 459, 422 miles were cleared by the subordinates free of cost and the remaining 30 miles of Kadagandi Reserve Forest was recleared at a cost of Rs. 50.
(e) Expenditure represents the cost of preliminary survey and demarcation of the unreserve blocks selected for reservation.
(f) Preliminary demarcation of Rampa blocks before reservation.
(g) Revised figures now furnished by the District Forest Officer.
(h) Excludes the boundaries of Panchayat reserves which are reported to be not known by the District Forest Officer.
(k) Represents cost of erection of granite stone pillars on 1 mile 2 furlongs of existing line.

Note for Second Circle.

(a) Maintained by subordinates free of cost.
(b) Party maintained by subordinates and partly on payment.

Note for Fourth Circle.

* The decrease represents area disreserved in Central Salem and area transferred to panchayats in South Salem.

Record of demarcation and maintenance of boundaries during 1928-29—*cont.*

District.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries still to be demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
								On new works	On repairs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fifth Circle.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	RS.	RS.
Kollegal	14	(a)* 355	..	369	* 74	152	595	777	..
Coimbatore, North	6	(a) 550	..	556	†103	106	† 765	111	(b)371
Do. South.	..	1	219	220	..	72	292	..	57
Madura	11	765	(c) 462	1,238	203	171	(c)1,611	1,099	..
Tinnevelly ..	..	285	147	432	..	35	(d) 467	..	50
Total ..	31	1,956	828	2,815	379	536	3,730	1,987	478
Sixth Circle.									
Mangalore, North.	..	18	(g)1,208	1,226	..	103	1,329	..	230
Do. South.	..	28	1,107	1,135	..	101	1,236	..	210
Wynaad	(a) 11	(b) 53	1,140	1,204	..	36	1,240	665	64
Nilambur	..	(c) 101	..	101	14	55	170	..	1
The Nilgiris ..	(d) 3	(e) 395	1,127	1,525	..	299	1,824	(f) 286	537
Palghat	..	(g) 144	136	280	..h	89	(i) 319	..	42
Total ..	14	739	4,718	5,471	14	633	6,118	951	1,084
Parlakimedi ..	1	498	2	499	..	24	523	..	..
Grand Total, Presidency.	259	15,924	6,431	22,602	408	2,465	26,282	6,850	3,942

Note for Fifth Circle.

* Revised figures furnished by the District Forest Officer.
(a) Cleared by subordinates free of cost
† The difference of 25 miles is due to the transfer of Odanthorai Reserved forest to Panchayat management.
(b) Out of this, Rs. 70 was debited to b. IV-C.
(c) Encludes 6 miles due to disreservation of portions of certain reserves in Cumbum Range.
(d) The increase of 55 miles is due to the alteration of Travancore boundary in Kannikatty Range and due to the addition of the boundary between British and Travancore and British and Singampatti forests in Nanguneri Range.

Note for Sixth Circle.

(a) Demarcation of the reserve boundaries where the previous demarcation marks were not clear.
(b) Includes 9 miles cleared free of cost by subordinates and 27 miles cleared under "Political".
(c) Clearing done in connexion with fire protection.
(d) Increase of three miles is due to demarcation of boundary necessitated by disforestation.
(e) Includes 216 miles cleared by subordinates free of cost.
(f) Debited in accounts to 8 (b) IV Maintenance of boundaries.
(g) Usual line-clearing by subordinates.
(h) The 12 miles shown in the previous return has been added to the length in column (5) as no more boundary line has yet to be demarcated.
(i) Excludes the boundary of ryots forests under Panchayat management.

ANNUAL FORM No. 28.

Forest Department, Madras Presidency.

Progress made in working plans during 1928–29.

District.	Areas for which working plans have been compiled and approved by the Chief Conservator of Forests.		Areas for which working plans are being compiled or have been compiled but not yet sanctioned.		Areas for which working plans have still to be taken in hand.	Areas for which working plans are not required at present.	Total forest area as per Form No. 25.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FIRST CIRCLE.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved forests.							
Ganjam	625	..	..	..	..	..	625
Vizagapatam ..	219	..	..	..	39	49	307
Upper Godavari ..	..	..	..	..	830	..	830
Lower do. ..	396	..	..	..	106	66	568
Guntur	..	..	408	..	..	501	909
Nellore	80	..	39	..	292	409	820
Total ..	1,320	..	447	..	1,267	1,025	4,059
Reserved lands.							
Vizagapatam ..	..	..	..	..	..	2	..
Lower Godavari ..	..	..	..	..	..	11	..
Guntur	..	..	..	..	..	1	..
Total ..	..	..	..	..	..	14	..
SECOND CIRCLE.							
Anantapur	101	..	25	(*c*) 457	..	(*d*) 1,209	1,792
Kurnool, East ..	..	(*b*) 886	..	..	..	84	970
Do. South ..	351	..	..	283	..	19	653
Do. West ..	228	..	112	516	..	88	944
Cuddapah, North.	(*a*) 63	(*a*) 689	..	..	..	58	790
Do. South ..	112	..	9	548	..	20	689
Total ..	855	1,575	146	1,804	..	1,458	5,838

Note for Second Circle.

Column 4 includes areas covered by working schemes sanctioned by the Conservator.

Column 7 represents panchayat areas.

(*a*) Area comprised in the new working plan for the whole division sanctioned during the year; area shown in column 4 of last year's return less 2 square miles transferred to Nellore has been taken to column 3.

(*b*) The working plan was submitted during the year though ultimately sanctioned after the close of the year.

(*c*) Includes 8 square miles of Adoni East and West and additions reserves managed by the Adoni Municipality and shown in column 7 of last year's return.

(*d*) Decrease as compared to last year is due to disafforestation and correction of areas of reserves during the year.

Progress made in working plans during 1928–29—*cont.*

District.	Areas for which working plans have been completed and approved by the Chief Conservator of Forests.				Areas for which working plans are being compiled or have been compiled but not sanctioned.						Areas for which working plans have still to be taken in hand.	Areas for which working plans are not at present required.	Total forest area as per Form No. 25.
	At commencement of the year.		During the year.		At commencement of the year.			Taken in hand during the year.					
	Regular working plans.	Schemes.	Revised or new working plans.	Revised or new schemes.	Existing working plans.	Existing schemes.	New working plans or schemes.	Existing working plans.	Existing schemes.	New working plans or schemes.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
FOURTH CIRCLE.	SQ. MS.	SQ. MS.	SQ. MS.	S.MS.	SQ. MS.	S.MS.	S.MS.	SQ. MS.	S.MS.	S.MS.	SQ. MS.	SQ. MS.	SQ. MS.
Chittoor	(*d*) 84	..	(*e*) 578	..	..	..	..	..	..	..	..	(*b*) 208	786
Vellore	730	..	..	..	..	77	..	..	..	..	..	309	1,116
Salem, North ..	141	..	..	..	..	217	..	..	..	..	209	11	578
Do. Central ..	(*c*) 472	(*a*) 12	..	..	..	(*a*)47	110	..	..	..	114	154	965
	(*b*) 111											(*b*) 4	
Do. South ..	153	78	..	..	..	..	31	..	..	..	14	(*b*) 118	412
	(*b*) 38												
Total ..	1,625	78	578	..	..	294	141	..	..	..	337	804	3,857
	(*d*)+84	(*a*) 12				(*a*)47							

Note for Fourth Circle.

(*a*) Included in the figure shown in column (2)
(*b*) Areas under panchayat management.
(*c*) Excludes 3 square miles disforested during the year.
(*d*) Included in the figure in column 4.
(*e*) This is the correct area as per working plan sanctioned in Chief Conservator's Proceedings No. 312, dated 30th August 1928.

Progress made in working plans during 1928-29—*cont.*

District.	Areas for which working plans have been completed and approved by the Chief Conservator of Forests.		Areas for which working plans are being compiled or have been compiled but not sanctioned.		Areas for which working plans have still to be taken in hand.	Areas for which working plans are not at present required.	Total forest area as per Form No. 25.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Fifth Circle.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved forests.							
Kollegal ..	(*a*) 172	(*a*) 775	..	..	..	..	947
Coimbatore, North.	(*d*) 92 / (*e*)–42	..	..	..	19	(*e*) 42 / 282	372
	(*a*) 267	..	..	..	..	..	..
	(*f*) 212	..	..	..	..	..	..
Do. South.	(*d*) 65 / (*a*) 2	..	..	..	23	274	364
Madura	(*d*) 386 / * —17	..	15	..	285	15	684
Tinnevelly ..	(*a*) 287	17	..	..	..	102 / (*e*) 11	417
Tanjore	10	..	..	..	..	..	10
Total ..	1,434	792	15	..	327	726	3,294
Leased forests.							
Coimbatore, South.	20	..	..	..	..	7	27
Grand total ..	1,454	792	15	..	327	733	3,321
Sixth Circle.							
Reserved forests.							
Mangalore, North.	(*a*) 38	..	..	..	321	..	359
Do. South.	(*b*) 7	..	..	(*c*) 438	..	..	438
Wynaad	..	..	..	(*d*) 158	105	..	263
Nilambur	108	..	..	..	..	..	108
The Nilgiris ..	(*e*) 84	..	..	..	..	325	409
Palghat	(*h*) 65	..	..	(*f*) 24	167	(*g*) 6	262
Total ..	302	..	..	620	593	331	1,839

Note for Fifth Circle.

The District Forest Officer, North Coimbatore, reports that the figures shown now in column 2 under (*d*) are the correct figures.

* Area disforested in Cumbum Range.

(*a*) Areas of temporary working schemes sanctioned by the Conservator.

(*d*) Areas of regular working plans in force.

(*e*) Areas of ryote' forests.

(*f*) Areas of lapsed working plans for extraction of dead sandal trees.

Note for Sixth Circle.

(*a*) Working scheme for catechu areas sanctioned by the Chief Conservator.

(*b*) This area is covered by one working plan sanctioned by the Board of Revenue and two schemes sanctioned by the Chief Conservator and of one scheme sanctioned by the Conservator.

(*c*) A regular working plan is actually under preparation by the working plans circle and considerable progress has been made. This working plan is to cover the whole area of the Division including the area shown in column 2.

(*d*) Sanctioned by the Chief Conservator since close of the year.

(*e*) The area relates to the working plan for the Nilgiris plantations, portion covered by the Mudumalai working plan; Sandalwood scheme for Segur and Coonoor Ranges sanctioned by the Chief Conservator and the scheme for bamboo areas in Coonoor Range sanctioned by the Conservator.

(*f*) Chenat Nair scheme prepared by Mr. Lasrado. The preparation of a regular working plan was taken up during 1928-29 by working plans circle.

(*g*) Area under the Erode Panchayat.

(*h*) Area covered by the working plans for Thadagam, Bolampatty and Walayar working circles.

Progress made in working plans during 1928-29—*cont.*

District.	Areas for which working plans have been completed and approved by the Chief Conservator of Forests.		Areas for which working plans are being compiled or have been complied but not sanctioned.		Areas for which working plans have still to be taken in hand.	Areas for which working plans are not at present required.	Total forest area as per Form No. 25.
	At commencement of the year.	During the year.	At commencement of the year	Taken in hand during the year.			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
SIXTH CIRCLE —*cont.*	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved lands.							
Mangalore, South.	..	..	..	..	..	6	6
The Nilgiris ..	75	..	..	..	..	(i) 7	82
Total ..	75	..	..	..	..	13	88
Leased forest.							
Nilambur	18	..	..	..	..	..	18
Grand total ..	395	..	..	(j) 620	593	344	1,945
Grand total, Presidency—							
Reserved forests.	5,710	2,945	1,090	2,424	2,524	4,344	18,887
Reserved lands.	75	..	..	..	..	27	88
Leased forests.	38	..	..	..	..	7	45
Total ..	5,823	2,945	1,090	2,424	2,524	4,378	19,020

(i) Todapatta land and Badaga plantations scattered over the district.
(j) Includes 7 acres shown in column (2).

Annual Form No. 29.

Forest Department, Madras Presidency.

Communications and buildings during 1928-29.

District.	Roads (including bridge-paths and culverts).				Buildings.		Other works.	
	New works.		Repairs.		Cost of new works.	Cost of repairs.	Cost of new works.	Cost of repairs.
	Length.	Cost.	Length.	Cost.				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	M. F. CH.	Rs.	M. F. CH.	Rs.	Rs.	Rs.	Rs.	Rs.
First Circle.								
Ganjam	1 0 0	1,399	18 0 4	1,954	1,671	(a) 5,250 + 1,458	802	94
Vizagapatam ..	8 0 0	— 800	19 0 0	494	1,442	967 (a) 216	..	6
Godavari, Upper ..	0 5 2	917	41 1 7	617	6,143	1,711 (a) 420	554	47
Do. Lower ..	1 7 7	225	13 3 0	1,251	3,705	1,864 (a) 348	299	..
Guntur	3 4 0	59	5 7 0	1,126	1,019	1,112	..	56.
Nellore	.. ..	170	..	1,620	80	2,218 (a) 1,740	..	..
Total ..	15 0 9	1,970	97 4 1	7,062	14,060	17,304	1,155	203
Second Circle.								
Anantapur ..	..	..	21 0 0	1,959	..	667 (b) 1,436	..	40
Kurnool, East ..	0 3½ 0	137	62 4 0	2,036	622	1,334 (b) 523	51	239
Do. South ..	..	..	67 3 0	1,547	737	1,872 (b) 156	765	74
Do. West ..	..	(c) 416	22 2 0	1,086	488	861 (b) 568	339	119
Cuddapah, North ..	..	..	25 0 0	697	736	1,393 (b) 548	257	4
Do. South ..	..	..	33 3 0	1,458	1,035	2,129 (b) 476	(d) 219	13
Total ..	0 3½ 0	553	234 4 0	7,923	3,618	11,963	1,631	589
Fourth Circle.								
Chittoor ..	13 2 0	4,326	32 3 0	2,052	95	1,797 (e) 647	1,260	20
Vellore	3 0 0	1,798	92 1 0	4,364	563	2,461 (e) 1,584	1,913	127
Salem, North ..	..	(d) 319	70 4 0	3,553	2,600	1,425 (e) 167	296	54
Do. Central ..	5 0 0	50	27 5 0	1,194	193	786 (e) 854	82	20
Do. South ..	0 3 0	50	79 0 0	1,952	3,068	2,146 (e) 509	13	313
Total ..	21 5 0	6,543	301 5 0	13,115	6,519	12,376	3,564	534

Note for First Circle.—(a) Represents cost of temporary establishment.

Note for Second Circle.—(b) Cost of establishment.
(c) Represents expenditure on blasting in connexion with the widening of the Mantalabanama ghat road.
(d) Represents expenditure on the sinking of a well in the compound of the proposed Range quarters at Rajampet. The expenditure was charged under buildings.

Note for Fourth Circle.—(d) Spent for construction of culverts and for payment of compensation for the acquisition of land.
(e) Represents cost of establishment.

Communications and buildings during 1928-29—*cont.*

District.	Roads (including bridle-paths and culverts).				Buildings.		Other works.	
	New works.		Repairs.		Cost of new works.	Cost of repairs.	Cost of new works.	Cost of repairs.
	Length.	Cost.	Length.	Cost.				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
FIFTH CIRCLE.	M. F. CH.	RS.	M. F.	RS.	RS.	RS.	RS.	RS.
Kollegal	1 6 0	397	59 4	10,153	2,272	1,420	68	5
Coimbatore, North.	..	(a) 79	67 7	8,604	1,315	3,138 (b) 297	157	38
Do. South..	0 7 0	1,890	30 0	1,358	4,819	2,657	..	560
Madura	4 2 0	2,404	294 4	11,408	1,297	3,396	..	213
Tinnevelly ..	6 0 0	1,682	74 3	4,802	1,610	1,715	288	100
Total ..	12 7 0	6,452	526 2	36,825	11,313	12,623	513	916
SIXTH CIRCLE.								
Mangalore, North.	..	..	(d) 39 1	864	3,631	(i) 1,168	322	(i) 205
Do. South.	7 4 0	5,993	(e) 79 5	565	3,675	923	313	76
Wynaad	4 6 0	1,637	184 4	5,239	4,524	2,514	485	910
Nilambur	..	121	17 5	(g) 1,798	(h) 4,724	(j) 2,772	..	16
The Nilgiris ..	..	..	90 7	2,739	..	1,859	..	309
Palghat	(c) 2 6 0	1,337	(f) 206 6	3,086	714	1,819	..	109
Total ..	15 0 0	9,088	618 4	14,291	17,268	11,055	1,120	1,625
FOREST ENGINEERING BRANCH.								
Forest Engineer, Madras.	4·5	34,363	25	3,009	53,073	Nil.	Nil.	203
Saw Mills and Extraction Division.	3·5	10,293	..	3,189	..	720	..	..
Forest Utilization division.	..	..	..	..	1,017	Nil.	..	..
Logging Engineer's division.	..	..	..	..	718	Nil.	..	..
Forest Exploitation division.	4·9	18,897+1,100	(k)..	..	(l) 2,980	..	..	..

Note for Fifth Circle.

(a) Cost of establishment.
(b) Amount paid to Pattadars for acquisition of land for the Dhayanur-Tholampalayam road constructed in 1927-28.

Note for Sixth Circle.

(c) Relates to metalling road.
(d) Includes inspection paths 27 miles.
(e) Do. inspection and drag paths 57 miles.
(f) Do. inspection paths 198 miles.
(g) Do. cost of timber and hire of live-stock Rs. 338.
(h) Do. do. Rs. 1,338.
(i) Rs. 14 is reported to have been erroneously debited to 'other works' instead of to 'Buildings.'
(j) Includes cost of timber and hire of live-stock Rs. 407.

Forest Engineering Branch.

(k) Relates to the Chenat Nair commercial concern.
(l) Rest house at Elival which will ultimately be transferred to the district.

Communications and buildings during 1928-29—*cont.*

District.	Roads (including bridle-paths and culverts).				Buildings.		Other works.	
	New works.		Repairs.		Cost of new works.	Cost of repairs.	Cost of new works.	Cost of repairs.
	Length.	Cost.	Length.	Cost.				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	M. F. CH.	RS.	M. F. CH.	RS.	RS.	RS.	RS.	RS.
FOREST ENGINEERING BRANCH—*cont.*								
Forest Economist.	..	..	..	..	539	..	..	..
Total ..	12·9	64,653	..	6,198	58,327	720	..	203
Parlakimedi Maliahs.	..	..	..	..	1,370	184	..	..
Grand Total, Presidency.	81 0 1	89,259	1,827 3 1	99,914	1,12,475	66,225	7,983	4,070

ANNUAL FORM No. 30.

Forest Department, Madras Presidency.

Return of breaches of Forest Rules during 1928–29.

ANNUAL FORM No. 30.

Forest Department, Madras Presidency.

Return of breaches of Forest Rules during 1928–29.

District.	Cases pending from 1927–28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIRST CIRCLE.														
By Forest Officers.														
Ganjam .. A ..	20	..	14	1	6	21	41	19	145	14	156	33	301	8
Ganjam .. B ..	102	..	354	33	28	415	517	390	1,441	53	250	443	1,691	74
Ganjam .. C ..	..	43	20	..	..	63	63	..	..	..	..	..	..	..
Total ..	122	43	388	34	34	499	621	409	1,586	67	406	476	1,992	82
Vizagapatam. A ..	(a) 12	..	77	7	5	89	101	31	174	68	141	99	315	2
Vizagapatam. B ..	48	..	174	12	8	194	242	201	778	14	49	215	827	27
Vizagapatam. C ..	..	..	3	..	..	3	3	..	..	..	..	..	..	..
Total ..	60	..	254	19	13	286	346	232	952	82	190	314	1,142	29
Gödävari, Upper. A ..	(a) 13	3	33	..	3	39	52	18	46	14	39	32	85	20
Gödävari, Upper. B ..	1	..	75	4	3	82	83	74	167	..	..	74	167	9
Gödävari, Upper. C ..	..	63	12	..	1	76	76	..	..	..	..	..	..	..
Total ..	14	66	120	4	7	197	211	92	213	14	39	106	252	29
Gödävari, Lower. A ..	(a) 23	..	23	2	2	27	50	17	37	22	76	39	113	11
Gödävari, Lower. B ..	77	..	128	66	34	228	305	156	406	68	271	224	677	81
Gödävari, Lower. C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	100	..	151	68	36	255	355	173	443	90	347	263	790	92

Guntūr ..	A ..	(a) 100	..	107	43	13	163	263	114	338	101	337	215	675	48
	B ..	193	..	499	214	83	796	489	780	2,086	1	18	781	2,104	208
	C ..	..	..	9	1	..	10	10	..	..	..	..	..	..	..
Total	..	293	..	615	258	96	969	1,262	894	2,424	102	355	996	2,779	256
Nellōre ..	A ..	110	..	38	39	15	92	202	37	127	69	262	106	389	96
	B ..	57	..	279	103	10	392	449	82	51	380	925	412	976	37
	C ..	..	..	..	3	..	3	3	..	..	..	..	..	..	..
Total	..	167	..	317	145	25	487	654	69	178	449	1,187	518	1,365	133
Total	A ..	278	3	292	92	44	431	709	236	867	288	1,011	524	1,878	185
	B ..	478	..	1,509	432	166	2,107	2,585	1,633	4,929	516	1,513	2,149	6,442	436
	C ..	..	106	44	4	1	155	155	..	..	..	..	..	..	..
Total	..	756	109	1,845	528	211	2,693	3,449	1,869	5,796	804	2,524	2,673	8,320	621
By Revenue Officers.																
Ganjam ..	A ..	..	1	22	..	..	23	23	5	9	6	30	11	39	12
	B ..	..	..	2	..	..	2	2	2	3	..	..	2	3	..
	C ..	..	..	7	..	..	7	7	..	..	..	..	..	..	..
Total	..	..	1	31	..	..	32	32	7	12	6	30	13	42	12
Vizaga-patam.	A ..	..	..	29	..	..	29	29	29	82	..	..	29	82	..
	B ..	19	..	188	43	8	239	258	250	886	1	7	251	893	7
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	19	..	217	43	8	268	287	279	968	1	7	280	975	7
Godavari, Lower.	A ..	..	..	27	2	..	29	29	23	63	6	11	29	74	..
	B ..	..	..	164	2	26	192	192	183	252	3	3	186	255	6
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	..	..	191	4	26	221	221	206	315	9	14	215	329	6
Guntur ..	A ..	10	..	14	..	3	17	27	5	9	20	75	25	84	2
	B ..	(b) 139	2	188	3	21	214	353	201	510	53	122	254	632	99
	C ..	..	..	5	..	..	5	5	..	..	..	..	..	..	..
Total	..	149	2	207	3	24	236	385	206	519	73	197	279	716	101

Return of breaches of Forest Rules during 1928-29—*cont.*

District.	Cases pending from 1927-28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIRST CIRCLE—*cont.*														
***By Revenue Officers*—cont.**														
Nellore .. A ..	(a) 38	..	34	..	1	35	73	30	74	35	107	65	181	8
Nellore .. B ..	83	..	114	..	..	114	197	20	48	160	242	180	290	17
Nellore .. C ..	..	..	9	..	4	13	13	..	..	..	..	..	..	..
Nellore .. Total ..	121	..	157	..	5	162	283	50	122	195	349	245	471	25
Total .. A ..	48	1	126	2	4	133	181	92	237	67	223	159	460	22
Total .. B ..	241	2	656	48	55	761	1,002	656	1,699	217	374	873	2,073	129
Total .. C ..	..	..	21	..	4	25	25	..	..	..	..	..	..	..
Total .. Total ..	289	3	803	50	63	919	1,208	748	1,936	284	597	1,032	2,533	151
Grand Total. A ..	326	4	418	94	48	564	890	328	1,104	355	1,234	683	2,388	207
Grand Total. B ..	719	2	2,165	480	221	2,868	3,587	2,289	6,628	733	1,887	3,022	8,515	565
Grand Total. C ..	..	106	65	4	5	180	180	..	..	..	..	..	..	..
Grand Total. Total ..	1,045	112	2,648	578	274	3,612	4,657	2,617	7,732	1,088	3,121	3,705	10,853	772
SECOND CIRCLE.														
Reserves under the control of the Forest Department.														
Anantapur. A ..	28	..	49	22	16	87	115	80	261	9	32	89	293	26
Anantapur. B ..	43	..	223	115	54	392	435	316	796	23	88	369	884	66
Anantapur. C ..	..	91	30	..	..	121		..	..	..	..	..	..	..
Anantapur. Total ..	71	91	302	137	70	600	550	426	1,057	32	120	458	1,177	92

Kurnool, East.	A	..	42	..	19	8	3	30	72	20	58	47	103	67	161	5
	B	..	32	..	140	59	21	220	252	201	443	13	34	214	477	38
	C	..	..	16	10	5	1	32	..	..	..	..	..	..	..	..
	Total	..	74	16	169	72	25	282	324	221	501	60	137	281	638	43
Kurnool, South.	A	..	43	..	57	30	1	88	131	53	131	53	186	106	317	25
	B	..	22	..	191	54	..	245	267	212	412	10	32	222	444	45
	C	..	..	38	1	..	..	39	..	..	..	..	..	..	..	..
	Total	..	65	38	249	84	1	372	398	265	543	63	218	328	761	70
Kurnool, West.	A	..	41	..	27	18	..	45	86	76	286	3	13	79	299	7
	B	..	107	..	307	145	25	477	584	510	1,405	19	109	529	1,514	55
	C	..	..	55	16	..	..	71	..	..	..	..	..	..	..	..
	Total	..	148	55	350	163	25	593	670	586	1,691	22	122	608	1,813	62
Cuddapah, North.	A	..	13	..	86	9	5	100	113	69	187	39	119	108	306	5
	B	..	14	..	181	80	10	271	285	248	470	9	34	257	504	28
	C	..	..	..	18	..	..	18	..	..	..	..	..	..	..	..
	Total	..	27	..	285	89	15	389	398	317	657	48	153	365	810	33
Cuddapah, South.	A	..	32	1	80	45	8	134	166	78	172	33	188	161	360	5
	B	..	28	..	194	119	24	337	365	312	579	25	56	337	635	28
	C	..	..	..	18	..	..	18	..	..	..	..	..	..	..	..
	Total	..	60	1	292	164	32	489	531	390	751	108	244	498	995	33
Total for the Circle.	A	..	199	1	318	132	33	484	683	376	1,095	234	641	610	1,786	73
	B	..	246	..	1,236	572	134	1,942	2,188	1,829	4,105	99	353	1,928	4,458	260
	C	..	..	200	93	5	1	299	..	..	..	..	..	..	..	..
Grand Total		..	445	201	1,647	709	168	2,725	2,871	2,205	5,200	333	994	2,538	6,194	333

A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

(*a*) = Differences between the closing balance of 1927–28 and the opening balance of 1928–29 are due to the transfer of cases from one head to another.

(*b*) = Revised figures furnished by Tahsildars.

Return of breaches of Forest Rules during 1928-29—*cont.*

District.	Cases pending from 1927-28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
SECOND CIRCLE.														
Unreserves.														
Anantapur. A	16	..	40	..	..	40	56	37	47	18	20	55	67	1
Anantapur. B	61	..	464	1	48	513	574	508	872	7	7	515	879	59
Anantapur. C	..	..	4	..	..	4	..	..	..	..	..	..	..	..
Anantapur. Total	77	..	508	1	48	557	630	545	919	25	27	570	946	60
Kurnool, East. A	3	..	6	..	..	6	9	7	11	2	2	9	13	..
Kurnool, East. B	3	..	77	..	..	77	80	71	99	..	..	71	99	9
Kurnool, East. C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Kurnool, East. Total	6	..	83	..	..	83	89	78	110	2	2	80	112	9
Kurnool, South.* A	..	..	21	1	2	24	24	22	30	1	3	23	33	1
Kurnool, South.* B	2	..	48	..	27	75	77	70	97	2	2	72	99	5
Kurnool, South.* C	..	..	5	..	1	6	..	..	..	..	..	..	..	..
Kurnool, South.* Total	2	..	74	1	30	105	101	92	127	3	5	95	132	6
Kurnool, West. A	12	..	12	..	..	12	24	11	13	1	2	12	15	12
Kurnool, West. B	2	..	117	..	..	117	119	101	140	..	..	101	140	18
Kurnool, West. C	..	..	8	..	..	8	..	..	..	..	..	..	..	..
Kurnool, West. Total	14	..	137	..	..	137	143	112	153	1	2	113	155	30

North Cuddapah,	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	3	17	..	..	20	20	20	70	..	..	20	70	..
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	3	17	..	..	20	20	20	70	..	..	20	70	..
South Cuddapah,	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	..	53	..	..	53	53	53	62	..	..	53	62	..
	C	..	..	..	4	..	..	4	..	..	..	..	..	..	..	..
	Total	..	..	..	57	..	..	57	53	53	62	..	..	53	62	..
Total ..	A	..	31	..	79	1	2	82	113	77	101	22	27	99	128	14
	B	..	68	3	776	1	75	855	923	823	1,340	9	9	832	1,349	91
	C	..	..	..	21	..	1	22	..	..	..	..	..	..	..	..
	Total	..	99	3	876	2	78	959	1,036	900	1,441	31	36	931	1,477	105
Grand total of reserves and unreserves.	A	..	230	1	397	133	35	566	796	453	1,196	256	668	709	1,864	87
	B	..	314	3	2,012	573	209	2,797	3,111	2,652	5,445	108	362	2,760	5,807	351
	C	..	..	200	114	.. 5	2	321	..	..	..	..	..	..	..	..
	Total	..	544	204	2,523	711	246	3,684	3,907	3,105	6,641	364	1,030	3,469	7,671	438

FOURTH CIRCLE.

Reserves.

Chittoor ..	A	..	40	..	199	102	14	315	355	119	271	200	460	319	731	36
	B	..	72	1	313	164	47	525	597	506	948	20	34	526	982	71
	C	..	..	52	9	..	2	63	..	..	..	..	..	..	..	..
	Total	..	112	53	521	266	63	903	952	625	1,219	220	494	845	1,713	107
Vellore ..	A	..	24	1	40	6	..	47	71	62	107	4	8	66	115	5
	B	..	380	1	1,189	477	15	1,682	2,062	1,782	2,885	6	15	1,788	2,900	274
	C	..	..	..	47	10	2	59	..	..	..	..	..	..	..	..
	Total	..	404	2	1,276	493	17	1,788	2,133	1,844	2,992	10	23	1,854	3,015	279

NOTE.—Offences relating to Panchayat areas excluded from the return as per Chief Conservator's L. Dis. No. 4016, dated 10th June 1929.
A = Cases taken to Court. B = Cases compounded. C = Cases withdrawn.
* Revised figures furnished by the District Forest Officer embodied in column 2.

Return of breaches of Forest Rules during 1928-29—*cont.*

District.		Cases pending from 1927-28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
			Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
									Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FOURTH CIRCLE—*cont.*															
Reserves—cont.															
Salem North.	A	*9	..	50	19	4	73	82	73	188	2	2	75	190	7
	B	*45	..	335	94	16	445	490	429	840	27	70	456	910	34
	C	..	82	..	..	..	82	..	..	..	..	..	..	..	..
	Total	54	82	385	113	20	600	572	502	1,028	29	72	531	1,100	41
Salem Central.	A	*42	1	146	15	12	174	216	148	479	41	157	189	636	27
	B	*45	1	1,065	220	18	1,304	1,349	1,108	2,428	36	139	1,144	2,567	205
	C	..	50	32	..	..	82	..	..	..	..	..	..	..	..
	Total	87	52	1,243	235	30	1,560	1,565	1,256	2,907	77	296	1,333	3,203	232
Salem South.	A	*13	..	75	1	6	82	95	68	206	6	14	74	220	21
	B	*21	1	331	24	89	445	466	389	887	..	..	389	887	77
	C	..	46	19	4	11	80	..	..	..	..	..	..	..	..
	Total	34	47	425	29	106	607	561	457	1,093	6	14	463	1,107	98
Total ..	A	*128	2	510	143	36	691	819	470	1,251	253	641	723	1,892	96
	B	*563	4	3,233	979	185	4,401	4,964	4,214	7,988	89	253	4,303	8,246	661
	C	..	230	107	14	15	366	..	..	..	..	..	..	..	..
	Grand total	691	236	3,850	1,136	236	5,458	5,783	4,684	9,239	342	899	5,026	10,138	757
Unreserves.															
Chittoor ..	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	187	..	2	189	189	189	248	..	..	189	248	..
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	187	..	2	189	189	189	248	..	..	189	248	..

Vellore ..	A ..	7	..	41	..	..	41	48	40	61	..	..	40	61	8
	B ..	‡325	3	2,743	318	90	3,154	3,479	2,232	3,694	5	5	2,237	3,699	1,242
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	‡332	3	2,784	318	90	3,195	3,527	2,272	3,755	5	5	2,277	3,760	1,250
Salem North.	A ..	4	..	7	4	8	19	23	5	10	7	10	12	20	11
	B ..	5	1	203	..	..	204	209	202	224	..	..	202	224	7
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	9	1	210	4	8	223	232	207	234	7	10	214	244	18
Salem Central.	A ..	(a) 7	..	58	..	..	58	65	53	67	9	14	62	81	3
	B ..	‡80	..	626	14	16	656	736	542	814	18	26	560	840	176
	C ..	..	..	1	..	..	1	..	..	..	..	..	..	..	..
	Total ..	‡87	..	685	14	16	715	801	595	881	27	40	622	921	179
Salem South.	A ..	69	..	157	..	..	157	226	147	319	37	84	184	403	42
	B ..	152	..	630	..	14	644	796	616	916	..	..	616	916	180
	C ..	..	..	20	..	..	20	..	..	..	..	..	..	..	..
	Total ..	§221	..	807	..	14	821	1,022	763	1,235	37	84	800	1,319	222
Total ..	A ..	87	..	263	4	8	275	362	245	457	53	108	298	565	64
	B ..	562	4	4,389	332	122	4,847	5,409	3,781	5,896	23	31	3,804	5,927	1,605
	C ..	..	..	21	..	..	21	..	..	..	..	..	..	..	..
Grand Total ..		649	4	4,673	336	130	5,143	5,771	4,026	6,353	76	139	4,102	6,492	1,669

A = Cases taken to court. B = Cases compounded. C = Cases undetected.

* The difference in the opening balance under (A and B) in the total figure is due to transfer of cases from B to A as detailed below :—

Two cases from B to A in North Salem.
Seven cases from B to A in Central Salem.
Fifteen cases from A to B in South Salem.

† Cases withdrawn.

‡ The difference in the opening balance is due to exclusion of cases relating to panchayat areas.

§ The difference is due to the revised and correct figures (opening balance) furnished by Revenue Divisional Officer, this year.

(a) Due to transfer of cases from B.

Return of breaches of Forest Rules during 1928-29—*cont.*

District.		Cases pending from 1927-28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
			Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
									Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIFTH CIRCLE.															
Reserves.															
Kollegal.	A ..	51	..	89	47	8	144	195	53	120	133	390	186	510	9
	B ..	34	3	166	62	6	237	271	217	498	2	11	219	509	52
	C ..	..	50	2	..	..	52	..	..	..	..	..	..	..	..
	Total ..	85	53	257	109	14	433	466	270	618	135	401	405	1,019	61
Coimbatore, North.	A ..	28	..	63	6	3	72	100	59	236	13	24	72	260	28
	B ..	..	..	350	100	10	500	500	466	1,147	34	76	500	1,223	..
	C ..	..	..	3	..	..	3	..	..	..	..	..	..	..	..
	Total ..	28	..	456	106	13	575	600	525	1,383	47	100	572	1,483	28
Coimbatore, South.	A ..	10	..	22	8	11	41	51	35	97	1	2	36	99	15
	B ..	25	..	97	25	54	176	201	155	359	11	66	166	425	35
	C ..	..	5	..	..	..	5	..	..	..	..	..	..	..	..
	Total ..	35	5	119	33	65	222	252	190	456	12	68	202	524	50
Madura ..	A ..	649	3	903	111	16	1,033	1,682	745	2,371	560	2,069	1,305	4,740	377
	B ..	40	..	284	88	10	382	422	260	639	48	155	308	794	114
	C ..	..	124	..	..	..	124	..	..	..	..	..	..	..	..
	Total ..	689	127	1,187	199	26	1,539	2,104	1,005	3,310	608	2,224	1,613	5,534	491

Tinnevelly	A ..	83	2	176	36	7	221	304	112	209	125	240	237	449	67
	B ..	123	..	340	146	9	495	618	86	162	404	737	490	899	128
	C ..	..	..	4	1	2	7	..	..	..	..	..	..	..	..
Total	..	206	2	520	183	18	723	922	198	371	529	977	727	1,348	195
Circle total.	A ..	821	5	1,253	208	45	1,511	2,382	1,004	3,333	832	2,725	1,836	6,058	496
	B ..	222	3	1,277	421	89	1,790	2,012	1,184	2,805	499	1,045	1,683	3,850	329
	C ..	..	179	9	1	2	191	..	..	..	..	..	..	..	..
Total reserves	..	1,043	187	2,539	630	136	3,492	4,344	2,188	6,138	1,831	3,770	3,519	9,908	825

Unreserves.

Kollegal ..	A ..	8	2	22	11	7	42	50	36	110	14	53	50	163	Nil
	B ..	..	14	37	..	..	51	51	41	57	..	..	41	57	10
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	8	16	59	11	7	93	101	77	167	14	53	91	220	10
Coimbatore, North.	A ..	..	..	4	..	..	4	4	3	5	..	..	3	5	1
	B ..	1	..	188	..	8	196	197	188	299	..	..	188	299	9
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	1	..	192	..	8	200	201	191	304	..	..	191	304	10
Coimbatore, South.	A ..	..	..	7	..	..	7	7	2	2	5	5	7	7	..
	B ..	3	..	55	..	21	76	79	71	75	..	..	71	75	8
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	3	..	62	..	21	83	86	73	77	5	5	78	82	8
Madura ..	A ..	92	..	101	3	1	105	197	37	63	103	113	140	176	57
	B ..	105	..	413	2	16	431	536	308	491	43	80	351	671	185
	C ..	5	..	6	..	..	6	..	..	..	..	..	..	..	..
Total	..	202	..	520	5	17	542	733	345	554	146	193	491	747	242

A = Cases taken to court. B = Cases compounded and withdrawn. C = Cases undetected.

Return of breaches of Forest Rules during 1928–29—*cont.*

District.	Cases pending from 1927–28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIFTH CIRCLE—*cont.*														
***Unreserves*—cont.**														
Tinnevelly A	4	..	17	4	..	21	25	7	10	17	23	24	33	1
Tinnevelly B	60	21	263	25	56	365	425	10	18	349	678	359	696	66
Tinnevelly C	..	..	2	..	..	2	..	..	..	..	..	..	..	..
Tinnevelly Total	64	21	282	29	56	388	450	17	28	366	701	383	729	67
Circle total. A	104	2	151	18	8	179	283	85	190	139	194	224	384	59
Circle total. B	169	35	956	27	101	1,119	1,288	618	940	392	758	1,010	1,698	278
Circle total. C	5	..	8	..	..	8	..	..	..	..	..	..	..	..
Total unreserves	278	37	1,115	45	109	1,306	1,571	703	1,130	531	952	1,234	2,082	337
Grand Total	1,321	224	3,654	675	245	4,798	5,915	2,891	7,268	1,862	4,722	4,753	11,990	1,162

NOTE—Differences between the closing balance of 1927–28 and the opening balance of 1928–29 are due to transfer of cases from one head to another.

SIXTH CIRCLE.

Reserved Forests.

Mangalore, North. A	(*b*) 2	..	3	1	3	7	9	8	11	1	1	9	12	..
Mangalore, North. B	(*b*) 17	6	63	20	9	98	115	88	151	(*a*) 10	19	98	170	17
Mangalore, North. C	..	30	..	..	..	30	30	..	..	..	..	..	..	..
Total	19	36	66	21	12	135	154	96	162	11	20	107	182	17

Mangalore, South.	A	..	(b) 16	4	43	8	5	60	76	7	9	53	93	61	103	15
												(c)1	1			
	B	..	(b) 33	10	110	42	18	180	218	166	299	(a) 7	28	173	327	40
	C	..	..	45	..	..	..	45	45	..	..	..	..	..	..	..
	Total	..	49	59	153	50	23	285	334	173	308	61	122	234	430	55
Wynaad ..	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	1	..	3	4	4	11	12	11	14	..	..	11	14	1
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	1	..	3	4	4	11	12	11	14	..	..	11	14	1
Nilambur.	A	..	6	..	..	9	4	13	19	10	14	2	4	18	29	1
												(d)6	11			
	B	..	4	..	1	14	7	22	26	23	134	(a) 2	14	25	148	1
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	10	..	1	23	11	35	45	33	148	10	29	43	177	2
The Nilgiris.	A	..	(b) 5	1	31	21	9	62	87	6	19	6	29	12	48	55
	B	..	(b) 72	1	310	175	50	536	608	453	977	24	78	477	* 1,055	131
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	77	2	341	196	59	598	675	459	996	30	107	489	1,103	186
Palghat ..	A	..	11	1	27	4	7	39	50	28	35	(c) 8	34	36	69	14
	B	..	2	..	115	27	3	145	147	103	226	19	33	131	273	16
												(d)9	14			
	C	..	..	17	..	..	..	17	17	..	..	..	..	..	..	..
	Total	..	13	18	142	31	10	201	214	131	261	36	81	167	342	30

A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

(a) Cases withdrawn.
(b) Differences between the closing balance of 1927-28 and the opening balance of 1928-29 are due to the transfer of cases from one head to another.
(c) Acquitted by Magistrate for want of evidence.
(d) Acquitted by Magistrate after payment of compounding fees in Court.

Return of breaches of Forest Rules during 1928-29—*cont.*

District.	Cases pending from 1927-28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
SIXTH CIRCLE—*cont.*														
***Reserved Forests*—cont.**														
Total, VI Circle. A	(b) 40	6	104	43	28	181	221	59	88	77	173	136	261	85
B	(b) 129	17	602	282	91	992	1,121	844	1,801	71	186	915	1,987	206
C	..	92	..	..	..	92	92	..	..	..	..	..	..	..
Total	169	115	706	325	119	1,265	1,434	903	1,889	148	359	1,051	2,248	291
Unreserved Forests														
Mangalore, North. A	(b) 14	..	17	..	4	21	35	13	14	7	9	20	23	15
B	(b) 21	..	137	..	10	147	168	144	183	..	..	144	183	24
C	..	..	8	..	..	8	8	..	..	..	..	..	..	..
Total	35	..	162	..	14	176	211	157	197	7	9	164	206	39
Mangalore, South. A	(b) 64	27	21	..	1	49	113	29	37	(c) 11	11	102	119	11
										(d) 62	71			
B	(b) 118	100	71	..	2	173	291	236	253	(e) 20	20	256	273	35
C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	182	127	92	..	3	222	404	265	290	93	102	358	392	46
Wynaad. A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
B	..	..	4	..	..	4	4	4	4	..	..	4	4	..
C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	..	4	..	..	4	4	4	4	..	..	4	4	..

The Nilgiris.	A	..	1	..	..	..	..	..	1	1	1	..	..	1	1	..
	B	..	1	..	6	..	..	6	7	7	7	..	..	7	7	..
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total		..	2	..	6	..	..	6	8	8	8	..	..	8	8	..
Palghat ..	A	..	2	..	17	..	..	17	19	5	6	8	18	13	24	6
	B	..	19	..	98	..	4	102	121	98	104	..	..	98	104	23
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total		..	21	..	115	..	4	119	140	103	110	8	18	111	128	29
Total, unreserve.	A	..	(b) 81	27	55	..	5	87	168	48	58	88	109	136	167	32
	B	..	(b) 159	100	316	..	16	432	591	489	551	20	20	509	571	82
	C	..	..	..	8	..	..	8	8	..	..	..	..	..	..	..
Total		..	240	127	379	..	21	527	767	537	609	108	129	645	738	114
Total, Reserves and Unreserves, VI Circle.	A	..	121	33	159	43	33	268	389	107	146	165	282	272	428	117
	B	..	288	117	918	282	107	1,424	1,712	1,333	2,352	91	206	1,424	2,558	288
	C	..	..	92	8	..	..	100	100	..	..	..	..	..	..	..
Total		..	409	242	1,085	325	140	1,792	2,201	1,440	2,498	256	488	1,696	2,986	405
Parlakimedi Maliahs.	A	..	1	..	46	3	5	54	55	18	62	31	83	49	145	6
	B	..	26	3	119	9	7	137	163	121	367	14	39	135	406	28
	C	..	..	35	..	..	..	35	..	..	..	..	..	..	..	..
Total		..	27	38	165	12	12	226	218	139	429	45	122	184	551	34

A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

(a) Cases withdrawn.
(b) Differences between the closing balance of 1927-28 and the opening balance of 1928-29 are due to the transfer of cases from one head to another.
(c) Acquitted by Magistrate for want of evidence.
(d) Acquitted by Magistrate after payment of compounding fees in Court.

Return of breaches of Forest Rules during 1928–29—*cont.*

District.		Cases pending from 1927–28.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
			Injury to forest by fire.	Unauthorized felling.	Unauthorized grazing.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
									Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
Total, Departmental forest.	A ..	1,466	17	2,477	618	186	3,298	4,764	2,145	6,634	1,684	5,191	3,829	11,825	935
	B ..	1,638	24	7,857	2,686	665	11,232	12,870	9,704	21,628	1,274	3,355	10,978	24,983	1,892
	C ..	..	807	253	24	19	1,103	247	..	..	..	..	..	..	..
Total ..		3,104	848	10,587	3,328	870	15,633	17,881	11,849	28,262	2,958	8,546	14,807	36,808	2,827
Total, unreserves.	A ..	352	30	720	28	32	810	1,162	565	1,105	400	744	965	1,849	197
	B ..	1,225	147	7,212	417	376	8,151	9,376	6,488	10,793	675	1,231	7,163	12,024	2,213
	C ..	5	35	79	..	5	119	33	..	..	..	..	..	..	..
Total ..		1,582	212	8,011	445	413	9,080	10,571	7,053	11,898	1,075	1,075	8,128	13,873	2,410
Total, Presidency.	A ..	1,818	47	3,197	646	218	4,108	5,926	2,710	7,739	2,084	5,935	4,794	13,674	1,132
	B ..	2,863	171	15,069	3,103	1,041	19,383	22,246	16,192	32,421	1,949	4,586	18,141	37,007	4,105
	C ..	5	842	332	24	24	1,222	280	..	..	..	..	..	..	..
Grand Total, Presidency.		4,686	1,060	18,598	3,773	1,283	24,713	28,452	18,902	40,160	4,033	10,521	22,935	50,681	5,237

A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

FORM No. 31.

Forest Department, Madras Presidency.

Area of forest tracts protected from fire during the calendar year 1928.

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	First Circle.	ACS.	ACS.	ACS.	ACS.	RS.
Ganjam ..	Special protection ..	49,018	52,553	843	51,710	4,232
	General do. ..	168,407	216,843	23,471	193,372	2,730
	Total ..	217,425	269,396	24,314	245,082	6,962
Vizagapatam.	Special protection ..	73,859	79,119	9,400	69,719	215
	General do. ..	17,019	17,569	2,080	15,489	39
	Total ..	90,878	96,688	11,480	85,208	254
Godavari, Upper.	Special protection ..	331,393	530,296	192,331	337,965	3,673
	General do. ..	2,794	1,138	..	1,138	..
	Total ..	334,187	531,434	192,331	339,103	3,673
Godavari, Lower.	Special protection ..	103,300	116,854	9,515	107,339	1,686
	General do. ..	145,161	111,763	2,313	109,450	464
	Total ..	248,461	228,617	11,828	216,789	2,150
Guntur ..	Special protection ..	..	22,577	2,000	20,577	144
	General do. ..	391,004	310,160	522	309,638	..
	Total ..	391,004	332,737	2,522	330,215	144
Nellore ..	Special protection ..	131,341	139,853	643	139,210	520
	General do. ..	123,144	122,989	179	122,810	..
	Total ..	254,485	262,842	822	262,020	520
Total, First Circle.	Special protection ..	688,911	941,252	214,732	726,520	10,470
	General do. ..	847,529	780,462	28,565	751,897	3,233
	Grand Total ..	1,536,440	1,721,714	243,297	1,478,417	13,703
	Second Circle.					
Anantapur.	Special protection by a system of fire lines.	821	..	..	..	..
	Early burning	61,271	38,207	2,601	35,606	120
	General protection ..	291,606	334,736	31,956	302,780	..
	Total ..	353,698	372,943	34,557	338,386	120
Kurnool, East.	Early burning	94,396	93,770	711	93,059	669
	General protection ..	468,505	473,308	100	473,208	..
	Total ..	562,901	567,078	811	566,267	669
Kurnool, South.	Early burning	271,229	102,905	7,938	94,967	457
	General protection ..	113,172	302,854	3,160	299,694	..
	Total ..	384,401	405,759	11,098	394,661	457

Area of forest tracts protected from fire during the calendar year 1928—*cont.*

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	Second Circle—cont.	ACS.	ACS.	ACS.	ACS.	RS.
Kurnool, West.	Special protection by a system of fire lines	3,538	3,888	460	3,428	35
	Early burning	176,425	94,082	* 511	93,571	707
	General protection ..	365,276	450,034	11,269	438,765	225
	Total ..	545,239	548,004	* 12,240	535,764	967
Cuddapah, North.	Early burning	456,340	30,610	..	30,610	201
	General protection ..	..	454,621	34,018	420,603	619
	Total ..	456,340	485,231	34,018	451,213	820
Cuddapah, South.	Early burning	366,402	81,287	..	81,287	665
	General protection ..	15,930	346,847	5,281	341,466	342
	Total ..	381,332	428,134	5,881	422,753	1,007
For whole of Second Circle.	Special protection by a system of fire lines.	4,359	3,888	460	3,428	35
	Early burning	1,426,063	446,831	11,761	429,100	2,819
	General protection ..	1,254,489	2,362,400	85,884	2,276,516	1,186
	Grand Total ..	2,683,911	2,807,149	98,105	2,709,044	4,040
	Fourth Circle.					
Chittoor ..	Special protection ..	† 35,238	38,423	1,234	37,189	891
	General do. ..	† 318,322	330,707	8,567	322,140	..
	Total ..	353,560	369,130	9,801	359,329	891
Vellore ..	Special protection ..	184,080	192,605	2,653	189,952	1,551
	General do. ..	266,444	(a) 253,820	4,245	249,575	..
	Total ..	450,524	446,425	6,898	439,527	1,551
Salem, North.	Special protection ..	56,327	66,418	4,894	61,554	500
	General do. ..	288,653	296,618	24,984	271,634	..
	Total ..	344,980	363,066	29,878	333,188	500

* Excludes two late fires of 160 acres in the early-burnt area of 1927-28 after 31st March 1929 and before the early-burning operation of 1928 29 began.

† The difference between the opening balance of this year and the closing balance of last year is due to the provision of the revised working plan sanctioned in G.O.P. No. 312, Press, dated 30th August 1928. According to which there are specially protected blocks in Mamandur range only.

Fourth Circle. ACS.

Note.—(*a*) Excludes area disafforested 183

,, area transferred to panchayat management .. 23,525

Total .. — 23,708

Includes area transferred from special protection .. + 2,741

Area of forest tracts protected from fire during the calendar year 1928—*cont.*

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	Fourth Circle—cont.	ACS.	ACS.	ACS.	ACS.	RS.
Salem, Central.	Special protection ..	239,442	(*b*) 252,348	3,642	248,706	793
	General do. ..	210,956	(*b*) 216,118	3,765	212,353	..
	Total ..	450,398	(*b*) 468,466	7,407	461,059	793
Salem, South.	Special protection ..	134,134	(*c*) 145,755	2,054	143,701	805
	General do. ..	34,547	(*d*) 37,399	68	37,331	..
	Total ..	168,681	183,154	2,122	181,032	805
Total, Fourth Circle.	Special protection ..	649,221	695,579	14,477	681,102	4,540
	General do. ..	1,118,922	1,134,662	41,629	1,093,033	..
	Grand Total ..	1,768,143	1,830,241	56,106	1,774,135	4,540
	Fifth Circle.					
Kollegal ..	Special protection ..	..	..	..	..	..
	General do. ..	586,923	601,889	24,174	577,715	776
	Total ..	586,923	601,889	24,174	577,715	776
Coimbatore, North.	Special protection ..	2,857	2,857	25	2,832	160
	General do. ..	514,357	529,541	18,419	511,122	1,091
	Total ..	517,214	(*e*) 532,398	18,444	513,954	1,251
Coimbatore, South.	Special protection ..	4,309	4,529	..	4,529	1,120
	General do. ..	237,212	239,344	1,436	237,908	9
	Total ..	241,521	243,873	1,436	242,437	1,129
Madura ..	Special protection ..	228,075	218,566	1,484	217,082	2,178
	General do. ..	193,443	195,523	5,646	189,877	..
	Total ..	421,518	414,089	7,130	406,959	2,178
Tinnevelly	Special protection ..	133,329	..	..	..	..
	General do. ..	104,669	242,937	4,974	237,963	..
	Total ..	237,998	242,937	4,974	237,963	..

(*b*) Correct areas furnished by the District Forest Officer.

(*c*) Attempted to be protected as per return for 1927 136,162
Transferred from general protection 9,593
Total .. 145,755

(*d*) Attempted to be protected as per return for 1927 34,800
Added from reserved lands 19,302
54,102
Transferred to special protection 9,593
Handed over to Panchayat 7,110
16,703
Net Total .. 37,399

(*e*) The difference of 25,702 acres is due to the handing over of some reserves to Panchayat.

Area of forest tracts protected from fire during the calendar year 1928—*cont.*

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	Fifth Circle—cont.	ACS.	ACS.	ACS.	ACS.	RS.
Total, Fifth Circle.	Special protection ..	368,570	225,952	1,509	224,443	3,458
	General do. ..	1,636,604	1,809,234	54,649	1,754,585	1,676
	Grand total ..	2,005,174	2,035,186	56,158	1,979,028	5,334
	Sixth Circle.					
Mangalore, North.	Special protection ..	93,550	50,412	363	50,049	1,958
	General do. ..	135,180	179,484	402	179,082	463
	Total ..	228,730	229,896	765	229,131	2,421
Mangalore, South.	Special protection ..	279,758	280,562	906	279,656	2,015
Wynaad ..	Special protection ..	143,405	143,623	753	142,870	1,130
Nilambur ..	Special protection ..	79,988	80,289	24	80,265	4,074
The Nilgiris.	Special protection ..	33,947	34,535	1,508	33,027	2,205
	General do. ..	231,103	227,486	6,397	221,089	..
	Total ..	265,050	262,021	7,905	254,116	2,205
Palghat ..	Special protection ..	116,343	116,772	271	116,501	2,467
	General do. ..	46,965	47,380	178	47,202	..
	Total ..	163,308	164,152	449	163,703	2,467
Total, Sixth Circle.	Special protection ..	746,991	706,193	3,825	702,368	13,849
	General do. ..	413,248	454,350	6,977	447,373	463
	Grand total ..	1,160,239	1,160,543	10,802	1,149,741	14,312
Parlakimedi Maliahs.	General protection ..	111,097	113,307	4,221	109,086	590
Total, Presidency.	Special protection ..	2,458,052	2,572,864	235,003	2,337,861	32,342
	General do. ..	5,381,889	6,654,415	221,925	6,432,490	7,348
	Early burning	1,425,063	440,86	11,761	429,100	2,819
	Grand total, Presidency	9,265,004	9,668,140	468,689	9,199,451	42,509

Annual Form No. 32.

Forest Department, Madras Presidency.

Area closed and open to grazing during 1928-29.

District.	Closed to all animals.		Open to grazing			
			Of all animals except goats.		Of all animals except browsers (sheep and goats).	
	Whole year.	Part of year.	Whole year.	Part of year.	Whole year.	Part of year.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Circle.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved forests.						
Ganjam	101	..	524	..	..	..
Vizagapatam	11	..	204	..	59	..
Godavari, Upper ..	3	..	827	..	..	..
Do. Lower ..	62	..	396	..	..	..
Guntur	65	17	205	..	325	..
Nellore	195	..	36	180	..	..
Total ..	467	17	2,192	180	384	..
Reserved lands.						
Vizagapatam	..	..	2	..	..	..
Godavari Lower, ..	..	..	11	..	..	..
Guntur	..	..	1	..	..	..
Total ..	..	..	14	..	..	..
Grand Total ..	467	17	2,206	180	384	..
Second Circle.						
Anantapur	33	22	(*a*) 528	22	..	..
Kurnool, East ..	2	..	884	..	..	..
Do. South ..	24	..	610	..	..	..
Do. West ..	19	..	837	..	..	..
Cuddapah, North ..	102	..	(*b*) 656	..	..	..
Do. South ..	65	..	604	..	..	..
Total ..	245	22	4,119	22	..	..
Fourth Circle.						
Reserved forests.						
Chittoor	121	8	447	..	..	..
Vellore	51	..	655	..	..	..
Salem, North	6	..	562	..	..	..
Do. Central ..	29	..	704	..	..	..
Do. South	6	..	250	..	..	..
Total ..	213	8	2,618	..	..	..

Note.—Variations from last year are due to exclusion of Panchayat areas.

(*a*) Includes Adoni East and West reserves managed by the Adoni Municipality under an annual lease.

(*b*) Includes one reserve (Chennapalle) not yet handed over to Panchayats.

Area closed and open to grazing during 1927-28—*cont.*

District.	Closed to all animals.		Open to grazing			
			Of all animals except goats.		Of all animals except browsers (sheep and goats).	
	Whole year.	Part of year.	Whole year.	Part of year.	Whole year.	Part of year.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fourth Circle—*cont.*	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved lands.						
Chittoor	..	..	..	..	..	..
Vellore	..	..	..	..	..	..
Salem, North ..	..	..	..	..	..	..
Do. Central ..	..	..	6	..	..	..
Do. South ..	..	..	30	..	..	..
Total ..	..	..	36	..	..	..
Grand Total ..	213	8	2,654	..	..	..
Fifth Circle.						
Kollegal	..	..	947	..	..	..
Coimbatore, North ..	22	3	808	* 3	..	..
Do. South ..	224	..	162	..	..	..
Madura †	127	..	321	..	199	..
Tinnevelly	218	2	179	2	..	9
Total ..	591	5	2,417	5	199	9
Sixth Circle.						
Reserved forests.						
Mangalore, North ..	24	..	335	..	..	..
Do. South ..	9	..	429	..	..	..
Wynaad	2	..	..	..	261	..
Nilambur	108	..	..	..	..	..
The Nilgiris	23	..	386	..	..	..
Palghat	143	..	110	..	..	..
Total ..	309	..	1,260	..	261	..
Reserved lands.						
Mangalore, South ..	..	..	6	..	..	..
Nilambur	18	..	..	..	..	..
The Nilgiris ..	9	..	73	..	..	..
Total ..	27	..	79	..	..	..
Grand Total ..	336	..	1,339	..	261	..
Parlakimedi Maliahs (Reserved lands).	2	..	175	..	..	..
Total, Presidency — Reserved forests.	1,825	52	12,606	207	844	9
Total, Presidency — Reserved lands.	29	..	304	..	..	..
Grand Total, Presidency.	1,854	52	12,910	207	844	9

* An area of about 3 square miles in Minchigully valley was opened from 15th August 1928 to 30th September 1928 on the Collector's approval due to rinderpest.

† The total area of the district is 684 square miles of which 37 square miles are under Panchayat management.

Forest Department, Madras Presidency.

Return of grazing in the State forests during 1928-29.

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FIRST CIRCLE.										
Reserved forests.					RS.					RS.
Ganjam	..	..	..	..	..	(a) 6,885	(a) 35,951	(a) 326	..	9,353
Vizagapatam ..	(b) 279	(b) 4,065	(b) 1	..	2,312	(a) 68	(a) 4,748	..	..	916
Godavari, Upper.	..	..	..	..	..	..	..	..	..	..
Do. Lower.	(a) 7,796	(a) 4,627	..	..	7,582	(a) 568	(a) 8,329	(a) 691	..	1,839
Guntur	(b) 8,815	(b) 45,994	(b) 64,915	..	48,041	999	2,953	6,171	..	1,507
	(e) 386	(a) 388	..	..	(i) 294	..	..	..	..	..
	..	(g) 1,313	..	..	435	..	..	..	..	..
	..	..	..	..	1,313	..	..	..	..	..
Nellore	(a) 117	(a) 1,429	(c) 440	..	912	..	..	..	..	..
		(b) 5		..	3	..	..	..	..	..
		(k) 57,511		..	22,307	..	..	..	..	..
Total	17,393	1,15,332	65,356	..	(f) 83,199	8,520	51,981	7,188	..	13,615
Unreserved lands.										
Godavari, Lower	(a) 6,761	(a) 5,240	..	..	(a) 7,036	..	..	..	..	..
Grand Total ..	24,154	1,20,572	65,356	..	90,235	8,520	51,981	7,188	..	13,615

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										Total value of fees at full rates.	Grand total of value at full rates.
	At privileged rates.*				Fees received.		By right under settlement.					During pleasure of Government or otherwise than under settlement.						
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Actual.	Value at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.		
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
First Circle. —*cont.* *Reserved forests* —cont.					Rs.	Rs.					Rs.					Rs.	Rs.	Rs.
Ganjām	..	..	..	..	..	..	180	856	..	..	227	507	3,300	..	..	809	1,036	10,389
Vizagapatam ..	..	..	..	..	..	..	..	..	..	..	..	..	4,573	..	..	857	857	4,085 (*h*)+4
Gōdāvari, Upper.	(*c*) 5,761	(*c*)41,458	(*c*) 9,413	..	7,208	10,812	..	..	..	..	..	4,358	41,792	22	..	9,470	9,470	20,282
Do. Lower.	(*d*) 545	(*d*)14,806	..	..	959	2,981	..	..	..	..	..	834	10,594	..	..	2,299	2,299	14,701
Guntūr	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51,296 (*i*) 294
Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,222
Total ..	6,306	56,244	9,413	..	8,167	13,793	180	850	..	..	227	5,699	60,259	22	..	13,435	13,662	1,24,269 (*h*) +4
Unreserved lands —cont.																		
Gōdāvari, Lower	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7,036
Grand Total ..	6,306	5,6244	9,413	..	8,167	13,793	180	850	..	..	227	5,699	60,259	22	..	13,435	13,662	1,31,309

Note for First Circle —

(*a*) Six annas per buffalo 3 annas per cow or bullock and 1 anna 6 pies per sheep.
(*b*) One rupee per buffalo 8 annas per cow or bullock and 4 annas per sheep.
(*c*) Twelve annas per buffalo, 6 annas per cow or bullock and 3 annas per sheep.
(*d*) One anna per buffalo or cow.
(*e*) Four annas per buffalo, 2 annas per cow or bullock and one anna per sheep.
(*f*) Kancha fees realised.
(*g*) One rupee per plough bull.
(*h*) Amount refunded by the Panchayat Deputy Tahsildar.
(*i*) Sale proceeds of grass.
(*k*) Kancha revenue convertad into number of cow units as per instructions in C.C.P. Press No. 835, dated 5th December 1924.

Return of grazing in the State forests during 1928–29—*cont.*

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SECOND CIRCLE.					Rs.					Rs.
Anantapur ..	..	..	..	..	..	..	(d) 686	..	..	686
						(c) 1,387	(c) 16,357	(c) 17,692	..	10,491
						(b) 818	(b) 17,700	(b) 34,460	..	18,285
						(a) 1,206	(a) 6,638	(a) 14,341	..	3,042
						..	..	..	..	(e) 99
						..	..	..	..	(f) 64
Kurnool, East ..	..	..	..	..	..	(a) 2,572	(a) 21,012	(a) 30,692	..	20,333
						(b) 367	(b) 7,926	..	..	8,660
Do. South ..	..	..	..	..	..	(a) 3,476	(a) 11,264	(a) 27,454	..	15,103
						..	(b) 1,713	..	..	1,713
Do. West ..	..	..	..	..	..	(a) 7,196	(a) 29,810	(a) 42,500	..	30,927
						(b) 34	(b) 4,943	(b) 31	..	5,027
Cuddapah, North.	..	..	..	..	..	(a) 3,281	(a) 11,641	(a) 49,942	..	16,134
						..	(b) 14,257	..	..	14,257
Cuddapah, South.	..	(a) 120	..	..	120	..	(b) 120,330	..	..	12,957
						(b) 513	(c) 3,917	..	..	3,917
						..	..	(b) 25,393	..	(c) 1,791
Total ..	..	120	..	..	120	21,150	168,694	242,205	..	1,63,484

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										
	At privileged rates.						By right under settlement.					During pleasure of Government or otherwise than under settlement.					
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Total value of fees at full rates.	Grand total of value at full rates.
					Actual.	Value at full rates.											
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
SECOND CIRCLE —*cont.*					RS.	RS.					RS.					RS.	RS.	RS.
Anantapur ..	..	..	..	..	..	..	..	..	..	..		..	..	..	..	..	..	32,665
Kurnool, East.	..	..	..	..	..	..	(*b*) 393 calf 1	(*b*) 718 1	(*b*) 2,029 ..	.. ..	2,519 calf 1	.. ..	.. ..	.. ..	.. ..	.. ..	2,519 1	31,513 ..
Do. South.	..	..	..	..	..	..	(*a*) 23	(*a*) 25	(*a*) 39	..	40	3	13	..	.	9	49	16.865
Do. West.	..	..	..	..	..	..	(*a*) 255	(*a*) 875	(*a*) 1,198	..	928	..	..	..	..	..	928	36,882
Cuddapah, North.	..	(*c*) 495 (*d*) 111	(*e*) 280 ..	.. ..	109 ..	280 ..	.. ..	.. ..	.. ..	.. ..	.. ..	68 ..	8 ..	90 ..	.. ..	71 ..	71 ..	30,742
Cuddapah, South.	..	..	..	..	..	..	..	(*d*) 663	..	..	249	..	..	..	..	..	249	19,034
Total ..	..	606	280	..	109	280	672	2,282	3,266	..	3,737	71	21	90	..	80	3,817	1,67,701

Note for Second Circle—

I. Anantapur—
- (*a*) Cows at annas 3 ; buffaloes at 6 annas ; sheep at 1½ annas.
- (*b*) Cows at 8 annas ; buffaloes at Re. 1 ; sheep at 4 annas.
- (*c*) Cows at 6 annas ; buffaloes at 12 annas ; sheep at 3 annas.
- (*d*) Cows at Re. 1.
- (*e*) Extra fees for penta grazing.
- (*f*) Kancha fees.

II. 3 Kurnool divisions—
- (*a*) Cows at 8 annas ; buffaloes at 12 annas ; sheep at 4 annas.
- (*b*) Cows at Re. 1 ; buffaloes at Rs. 2 ; sheep at 8 annas.

III. North Cuddapah division—
- (*a*) Buffaloes at 12 annas.
- (*a*) Cows at 6 annas.
- (*a*) Sheep at 3 annas.
- (*b*) Cows at Re. 1.
- (*c*) Cows at 3 annas.
- (*d*) Cows at 1 anna.
- (*e*) Sheep at ½ anna.

IV. South Cuddapah division.
- (*a*) Cows at Re. 1, enhanced rate sanctioned in G.O. Mis. No. 1270, Development, dated 5th August 1927 as a punitive measures to the villagers of Guvalacheruvu and its hamlets.
- (*b*) Buffaloes at 12 annas ; cows at 6 annas ; sheep at 3 annas.
- (*c*) Cows at Re. 1.
- (*d*) Cows at 6 annas.
- (*e*) Extra fees for penta grazing.

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Sheep.	Fees received.	Other animals.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
				Rs.						Rs.
FOURTH CIRCLE.										
Chittoor ..	..	..	..	..	..	(*a*) 272 (*b*) 615 (*c*) ..	13,467 36,336 140	6,754 9,369 ..	.. .. ..	8,694 15,844 105
Vellore	5	2,747	21	2,767	..	(*a*) 565½	68,399	28,741	..	41,950
Salem, North ..	..	..	..	..	..	(*b*) 1,723	(*a*) 64,814	(*a*) 2,605 (*b*) 3,225	.. ..	34,350 605
Do. Central.	..	10,987	..	10,987	..	(*d*) 164 .. .. (*b*) 370	45,152 .. (*a*) 44,624 ..	10,149 .. (*a*) 1,893 31,349	.. ..	28,437 .. (*a*) 22,785 6,155 3
							Excess collection			
Do. South ..	..	..	..	..	..	(*d*) 3 ..	20,871 (*b*) 7,836	31,517 4,288	.. ..	20,607 3,743
Total ..	5	13,734	21	13,754	..	3,712½	301,639	129,890	..	1,83,278

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										Grand total of value at full rates.
	At privileged rates.						By right under settlement.					During pleasure of Government or otherwise than under settlement.					
					Fees received.											Total value of fees at full rates.	
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Actual.	Value at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
FOURTH CIRCLE —*cont.*					Rs.	Rs.												Rs.
Chittoor ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24,643
Vellore ..	(*a*)3,910½	27,186	5,523⅝	..	7,082	18,884	..	..	..	..	..	..	..	..	..	..	..	63,627
	..	(*b*) 50	1	..	19	25												
Salem, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	34,955
Do. Central.	..	(*f*)10,610	..	.	1,327	5,968	..	..	..	..	..	..	..	..	..	..	..	74,335
Do. South .	.	..	..	.	..	..	..	..	..	..	..	..	..	..	..	.	..	24,350
Total ..	3,910½	37,846	5,524⅝	..	8,428	24,877	..	..	..	..	..	..	..	..	..	..	..	2,21,910

Note for Fourth Circle—

NOTE.— One buffaloe = 2 cows = 4 sheep. The enhanced rate is Re. 1 per cow unit.

The full rates are 12 annas per cow unit in Palmaner range, 8 annas per cow unit in Gudiyattam range and 6 annas per cow unit in other ranges of Chittoor division; 8 annas per cow unit in Vellore division; 8 annas and 6 annas per cow unit in North Salem division; 9 annas, 8 annas and 6 annas per cow unit in Central Salem and 9 annas and 6 annas per cow unit in South Salem division.

(*a*) Eight annas per cow unit. (*c*) Twelve annas per cow unit. (*e*) Three annas per cow unit.
(*b*) Six annas per cow unit. (*d*) Nine annas per cow unit. (*f*) Two annas per cow unit.

Abstract of animals licensed to grazing :—Buffaloes—7,628. Cows or bullocks—353,219. Sheep—135,435⅝. Total—496,282⅝.

Return of grazing in the State forests during 1928–29—*cont.*

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FIFTH CIRCLE.					Rs.					Rs.
Kollegal ..	..	..	..	..	(b) ..	5,080	85,467	7,830	..	49,771
Coimbatore, North.	(a) ..	10	..	..	10	(b) 3,314	62,946	18,327	..	39,369
Coimbatore, South.	..	..	..	..	..	(b) 524	9,024	380	(d) 3	5,161
Madura ..	..	..	..	..	..	(e) 49	28,089	1,864	..	21,840
						(f) 141	5,540	6,158	..	2,225
						(g) 10	3,663	1,520	..	4,443
Tinnevelly ..	..	..	..	..	..	(b) 179	9,828	10,764	..	7,784
						(h) 1	1,039	7,624	..	910
Total ..	..	10	..	..	10	9,298	205,596	54,467	3	1,31,503

Note for Fifth Circle—

(a) Penal rates at Rs. 2 per buffalo, Re. 1 per cow or bullock and As. 8 per sheep.

(b) Full or nominal rate for Kollegal, North and South Coimbatore and for all ranges in Tinnevelly except Srivaikuntam at Re. 1 per buffalo, As. 8 per cow or bullock and As. 4 per sheep.

(c) Renewal fees at one-fourth the normal rates.

(d) Elephants at Rs. 10 each.

(e) Full or normal rates for all ranges in Madura district except a portion of Kodaikanal range at Rs. 1-8-0 per buffalo, As. 12 per cow or bullock and As. 6 per sheep.

(f) Full or normal rates for a portion of Kodaikanal range at As. 8 per buffalo, As. 4 per cow or bullock and As. 2 per sheep.

(g) Full or normal rates at Rs. 2 per buffalo, Re. 1 per cow or bullock and As. 8 per sheep for Old Vaiyampatti range now merged in Ayyalur range, Madura district.

(h) Full or normal rates at As. 6 per buffalo, As. 3 per cow or bullock and As. 1½ per sheep for Srivaikuntam range, Tinnevelly district.

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										Grand total of value at full rates.
	At privileged rates.						By right under settlement.					During pleasure of Government or otherwise than under settlement.					Total value of fees at full rates.
					Fees received.												
	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Actual.	Value at full rates.	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Value of fees at full rates.	
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
											Rs.					Rs.	Rs.	Rs.
Fifth Circle—*cont.*																		
Kollegal ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	49,771
Coimbatore, North.	(c) 4	415	..	..	53	212	..	..	..	..	..	..	..	..	..	..	..	39,691
Coimbatore, South.	..	..	..	..	..	..	..	30	..	..	15	..	..	..	..	..	15	5,176
Madura ..	..	..	..	..	..	..	492	3,876	219	..	1,242	..	..	..	..	..	1,242	29,750
Tinnevelly ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8,694
Total ..	4	415	..	..	53	212	492	3,906	219	..	1,257	..	..	..	..	..	1,257	1,32,982

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals.										
	At enhanced or special rates.				At full rates.					At privileged rates.	
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sixth Circle.											
Reserved forests.				Rs.					Rs.		
Mangalore, North ..	..	..	..	..	1,234	12,528	..	..	5,469	..	..
Mangalore, South ..	..	(*a*) 13,718	..	1,715	2,412	17,708	..	..	8,148	..	..
Wynaad ..	..	..	..	..	2,456	4,079	..	..	4,496	..	..
Nilambur (*b*) ..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris ..	7	456 / (*c*) 6,750	.. / 28,300	235 / 157	8,018 / (*d*) 6	13,531 / (*d*) 28	1,941	..	5,729	..	..
Palghat	32	1,617	140	1,751	124	6,362	1,945	..	3,791	..	..
Total ..	39	22,541	28,440	3,858	14,250	54,236	3,886	..	27,633	..	..
Reserved lands.											
The Nilgiris ..	..	..	..	..	..	..	..	..	..	..	..

(*a*) Includes buffaloes. (*b*) No grazing allowed. (*c*) Slaughter cattle. (*d*) Calves.

Enhanced or special rates—

South Mangalore—Cattle admitted to Kulgunda cattle fair, As. 2 each.

The Nilgiris .. Buffalo, Re. 1. Cow, As. 8. Sheep, As. 4.

Palghat .. Buffalo, Rs. 2. Cow, Re. 1. Sheep, As. 8.

Enhanced or special rates—cont.

Slaughter cattle—

The Nilgiris: Cows, As. 3 per 50 per day; sheep, As. 1½ per 50 per day.

Full rates—

North and South Mangalore: Buffalo, As. 10. Cow, As. 6.

Full rates—cont.

Wynaad and Palghat: Buffalo, Re. 1. Cow, As. 8. Sheep, As. 4.

The Nilgiris .. Buffalo, As. 6. Cow, As. 3. Sheep, As. 1½.

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals—*cont.*				Grazing free—Number of animals.											
	At privileged rates.				By right under settlement.					During pleasure of Government or otherwise than under settlement.						
	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Total value of fees at full rates.	Grand total of value at full rates.
			Actual.	Value at full rates.												
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
SIXTH CIRCLE —*cont.*																
Reserved forests —cont.														Rs.	Rs.	Rs.
Mangalore, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,469
Mangalore, South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9,863
Wynaad ..	..	..	..	..	..	..	..	..	..	21	124	..	..	83	83	4,579
Nilambur (*b*) ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris.	..	..	..	..	..	..	..	..	..	362	157	..	..	169	169	6,290
	..	..	..	..	..	..	..	..	..	(*d*) 16	(*d*) 8	..	..	..	..	..
Palghat ..	..	..	..	..	..	..	..	..	..	..	108	..	..	108	108	5,650
Total ..	..	..	..	..	..	..	..	..	..	399	397	..	..	380	360	31,851
Reserved lands —cont.																
The Nilgiris ..	..	..	..	..	..	..	..	..	..	1,778	32	..	..	672	672	672

(*b*) No grazing allowed.

(*d*) Calves.

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals.											
	At the enhanced or special rates.					At full rates.					At privileged rates.	
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
SIXTH CIRCLE —*cont.*					RS.					RS.		
Reserved lands.												
Parlakimedi Maliahs ..	..	..	..	..	..	2,391	2,705	250	..	1,427	..	..
Total, Departmental areas..	24,198	156,977	93,817	..	1,07,977	59,322	784,851	437,886	3	5,20,940	10,221	95,111
Panchayat areas.	1,139	46,841	23,290	10	40,432	21,678	295,027	551,974	32	2,98,073	8,929	14,447
Grand Total, Presidency.	25,337	203,818	117,107	10	1,48,409	81,000	1,079,878	989,860	35	8,19,013	19,150	109,558

Return of grazing in the State forests during 1928-29—*cont.*

District.	Grazing on payment—Number of animals—*cont.*				Grazing free—Number of animals.											
	At privileged rates.				By right under settlement.					During pleasure of Government or otherwise than under settlement.						
	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Total value of fees at full rates.	Grand total of value at full rates.
			Actual.	Value at full rates.												
	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
			RS.	RS.					RS.					RS.	RS.	RS.
SIXTH CIRCLE —*cont.*																
Reserved lands —cont.																
Parlakimedi Maliahs ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total, Departmental areas..	15,218	..	16,757	39,162	1,344	7,038	3,485	..	5,221	7,867	60,709	112	..	14,547	19,768	6,86,425
Panchayat areas.	90,726	..	19,534	31,377	..	725	1,200	..	745	124	432	..	..	..	745	3,58,039
Grand Total, Presidency.	105,944	..	36,291	70,539	1,344	7,763	4,685	..	5,966	8,011	61,141	112	..	14,547	20,513	10,44,464

Abstract of animals permitted to graze on payment in reserved forests and reserved lands.

Circle.	Buffaloes.	Bullocks and cows.	Sheep.	Other animals.	Total.
First Circle	38,980	228,797	81,957	..	349,734
Second ,, ...	21,150	169,420	242,485	..	433,055
Fourth ,, ...	7,628	353,219	135,436	..	496,283
Fifth ,, ...	9,302	206,021	54,467	3	269,793
Sixth ,, ...	14,289	76,777	32,326	..	123,392
Total, Departmental—Forests	91,349	1,034,234	546,671	3	1,672,257
Panchayat areas ..	31,746	356,315	665,990	42	1,054,093
Grand Total ..	123,095	1,390,549	1,212,661	45	2,726,350

Annual Form No. 34-A.

Forest Department, Madras Presidency.

Progress in afforestation and regeneration under working plans or schemes during the year 1928–29.

(1) Division.	(2) Working circle and block.	(3) Period.	(4) Area to be regenerated during the period.	(5) Method of treatment.	(6) Area in which regeneration was in progress at commencement of year (1st April 1928).	(7) Area on which regeneration commenced during the year, 1st April 1928 to 31st March 1929.	Area on which regeneration is complete.			(11) Area on which regeneration is still in progress at close of year, 31st March 1929.	Expenditure during the year.		Expenditure from commencement of period.		(16) Revenue during the year.	(17) Total revenue from date of creation.
							(8) Previous.	(9) During year, 1st April 1928 to 31st March 1929.	(10) Total to 31st March 1929.		(12) Creation.	(13) Upkeep.	(14) Creation.	(15) Upkeep.		
	First Circle.	YEARS.	ACS.		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam.	Plain—Sal Timber Working Circle.	1919–20 to 1933–34.	2,506	Clear felling and natural regeneration.	..	177	1,575	177	1,752	..	707	1,265	6,578	9,243	..	..
	Ravine Working Circle.	1920–21 to 1939–40.	2,605	Do.	45·5	42	393·5	87·5	481	..	273	488	3,785	3,056	..	..
Vizagapatam.	Sal Working Circle.	1927–28 to 1961–62.	661	Do.	..	18	..	18	18	..	10	..	10	..	..	..
Godavari, Lower.	Casuarina Plantation, Kandikuppa Reserve.	1924–25 to 1933–34.	682	Planting up with seedlings 7′ × 7′.	..	64	270·8	..	270·8	64	1,786	279	7,179	..	160	(a) 205
	Total ..	..	6,454	..	45·5	301	2,239·3	282·5	2,521·8	64	2,776	2,032	17,552	12,299	160	205

	SECOND CIRCLE.															
Anantapur.	Amagondapalaiyam compartments I and II.	1928-29.	Two plots of 2 acres each to be regenerated with sandal.	Dibbling of seeds under the shade of host plants.	2 acres.	..	45	..	45	2	..	13	247	282	..	.. (b)
	Idupulapaya Palmyrah Plantation.	Do.	Not specified but blanks in felled coupes are to be taken up.	Sowing 2,500 palmyra seeds in blanks.	..	..	12	..	12	..	..	..	23	..	..	.. (c)
	Total ..	..	2	..	2	..	57	..	57	2	..	13	270	282	..	..
Kurnool, East.	Timber improvement cum clear felling Working Circle comprising.	40 years from 1928-29.	5,809 acres.	Clear felling and artificial regeneration of broad cast Sowing.												
	(1) Maddipenta ..	..	..	..	..	72	..	..	..	72	..	..	..	..	..	.. (d)
	(2) Mogulutla ..	..	..	..	..	95	..	..	..	95	..	..	..	..	..	..
	(3) Thummalabailu felling Series.	..	..	..	..	54	..	..	..	54	..	..	..	..	..	..
	Total ..	..	5,809	..	..	221	..	..	..	221	..	..	..	..	..	..
Kurnool West.	Veldurthi Working Circle.	10 years.	15 acres 1·25 acres.	(e) Cultural operations. (f) Sowing palmyra seeds.	..	..	17·50	..	17·50	..	..	..	81	191	..	..

(a) Rs. 45 was realised by the sale of dead trees in 1927-28 in coupe I of 1924-25 in Randikuppa Reserved Forest.
(b) Plots 8 and 15 which were failures were treated during the year.
(c) No necessity for artificial regeneration during the year.
(d) Burning of the debris and sowing on the ash were not taken up until after the close of the year; hence no expenditure shown. The cost of felling is not taken as forming part of the actual regeneration expenses.
(e) Omitted to be shown as such in the last return.
(f) Given up.

Progress in afforestation and regeneration under working plans or schemes during the year 1928-29—*cont.*

(1) Division.	(2) Working circle and block.	(3) Period.	(4) Area to be regenerated during the period.	(5) Method of treatment.	(6) Area in which regeneration was in progress at commencement of year (1st April 1928).	(7) Area on which regeneration commenced during the year, 1st April 1928 to 31st March 1929.	Area on which regeneration is complete.			(11) Area on which regeneration is still in progress at close of year, (31st March 1929).	Expenditure during the year.		Expenditure from commencement of period.		(16) Revenue during the year.	(17) Total Revenue from date of creation.
							(8) Previous.	(9) During year, 1st April 1928 to 31st March 1929.	(10) Total to 31st March 1929.		(12) Creation.	(13) Upkeep.	(14) Creation	(15) Upkeep.		
	SECOND CIRCLE —*cont.*															
Kurnool, West.	Gundlabrahmeswaram Working Circle.	10 years.	Blanks over 10 acres in coupe No. VIII.	Planting with teak and nallamaddi stumps.	9·50	0·60	..	0·60	0·60	9·50	..	13	..	242	..	..
	Pecheruvu Working Circle.	5 years.	Sandal coupe No. III 55 acres	Tending ..	..	55	..	..	..	55	..	25	..	25	..	..
	....	..	..	Dibbling sandal seeds in coupe No. II.	231	4	..	4	4	231	31	..	103	40	..	..
	Total ..	..	81	..	240·50	59·60	17·50	4·60	22·10	295·50	31	38	184	498	..	..
	Grand Total ..	..	5,892	.	242·50	280·60	74·50	4·60	79·10	518·50	31	51	454	780	..	..
	FOURTH CIRCLE.															
Chittoor.	Sandal regeneration Working Circles all the compartments.	1928 to 1929.	102 in plots of 1 acre each.	Sandal seeds to be dibbled by subordinates.	..	..	..	..	..	..	..	..	..	..	..	..

Chittoor—*contd.*	Timber regeneration Working Circle compartment I in each of the four series.	1928 to 1929.	2494	Early burning, cutting bark, seedings, early burning of creepers and sowing seeds in blank areas	..	320	..	..	..	..	..	50	..	50	..	..
	Total ..	..	2596	..	..	320	..	..	..	..	..	50	..	50	..	..
Vellore.	Virinjipuram Working Circle.	1888–89 to 1928–29.	Blanks in felled coupes.	Dibbling seeds of timber species.	..	..	283	..	283	..	..	278	9,552	56,637	1,602	43,947
	Chenur Working Circle.	Do.	Do.		..	..	142	..	142	..	..	144	4,623	3,949	70	7,544
	Kilvinnel Working Circle.	Do.	Do.		..	..	104	..	104	..	..	139	3,157	26,649	2,641	27,842
	Tiruvalam Working Circle.	Do.	Do.		..	..	111	..	111	..	..	276	7,819	60,881	477	35,802
	Total ..	..	..	..	..	..	640	..	640	..	..	837	24,651	1,48,116	4,790	1,15,185
Central Salem.	Kurumbapatti Palmyra tope.	16 years from 1926–27.	379	Sowing palmyra seeds.	...	25	19	25	44	..	113	..	187	..	370	416
	Shevaroys Central Working Circle.	4 years.	321	Planting silver oak and cyprus and sowing of seeds of Australian wattle.	..	..	143	..	143	..	..	..	..	9,096	..	..
	Sanniyasimalai Working Circle.	1	4	Planting Acacia Decurrens and blue gum.	..	..	4	..	4	..	..	..	108	..	..	..

Progress in afforestation and regeneration under working plans or schemes during the year 1928-29—*cont.*

Division.	Working circle and block.	Period.	Area to be regenerated during the period.	Method of treatment.	Area in which regeneration was in progress at commencement of year (1st April 1928).	Area on which regeneration commenced during the year, 1st April 1928 to 31st March 1929.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year, 31st March 1929.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
							Previous.	During year, 1st April 1928 to 31st March 1929.	Total to 31st March 1929.		Creation.	Upkeep.	Creation.	Upkeep.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	FOURTH CIRCLE —*cont.*	YEARS.	ACS.		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
Salem, Central—*cont.*	Jallutha Working Circle.	1927-28	114	(1) Felling of fuel coupes under "simple coppice." (2) Sowing seeds of indigenous species in blank areas.	..	..	114	..	114	..	..	..	..	..	..	..
	Total ..	..	818	..	..	25	280	25	305	..	113	..	295	9,096	370	416
	Turaiyur Range.															
Salem, South.	Ammapalaiyam Fuel Working Circle.	1923-24 to 1928-29	81	..	31	..	50	..	50	31	..	..	..	..	..	..
	Sobanapuram Working Circle.	1924-25 to 1928-29	76	..	39	..	37	..	37	39	..	..	..	..	..	..
	Ladapuram Working Circle.	1923-24 to 1928-29	98	..	55	..	43	..	43	55	..	..	..	..	..	..

Salem, South—*contd.*

| | | |

Progress in afforestation and regeneration under working plans or schemes during the year 1928-29—*cont.*

Division.	Working circle and block.	Period.	Area to be regenerated during the period.	Method of treatment.	Area in which regeneration was in progress at commencement of year (1st April 1928).	Area on which regeneration commenced during the year, 1st April 1928 to 31st March 1929.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year, 31st March 1929.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
							Previous.	During year, 1st April 1928 to 31st March 1929.	Total to 31st March 1929.		Creation.	Upkeep.	Creation.	Upkeep.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	FIFTH CIRCLE.		ACS.		ACS.	ACS.	ACS.		ACS.	ACS.	RS.	RS.	RS.	RS.		
	Mount Stuart Working Circle.															
	1918-19 regeneration area ..	..	..		..	..	29		..	29	..	..	80	643	746	..	..
	1919-20 regeneration area ..	..	..		..	..	8		..	8	..	..	..	584	576	..	..
	1920-21 regeneration area ..	..	..		..	..	29		..	29	..	..	80	545	1,236	..	..
	1922 regeneration area	..	..		..	..	126		..	126	..	..	371	3,358	4,284	..	..
	1923 regeneration area	..	..		..	..	194		..	194	..	..	192	5,055	5,676	..	..
	1924 regeneration area	..	..		..	..	226		..	226	..	..	205	6,459	4,462	..	..
	1925 regeneration area	..	..		..	..	260		..	260	..	..	63	9,986	6,348	..	..
	1926 regeneration area	..	..		..	..	251		..	251	..	..	..	15,251	1,446	..	..
	1927 regeneration area	..	..		..	..	155		..	155	..	..	1,095	5,405	4,749	..	..
	1928 regeneration area	..	..		* 144	..	..		144	144	..	72	2,157	4,124	2,157	..	..
Coimbatore	1929 regeneration area	..	151	ing, burning and dibbling teak and other seeds.	..	151	..		..	..	151	3,973	..	3,973	..	..	..

South	Waterfall plantation	..	..	Clearing for trying species other than teak.	..	..	12	..	12	..	..	..	..	..	..	..	
	Experimental plantation at Mount Stuart..	..	..		..	..	5	..	5	..	..	34	..	68	..	..	
	Experimental plantation at Karian shola ..	..	..		..	..	1	..	1	..	..	12	..	12	..	..	
	Experimental plantation at Top-slip ..	..	..		..	..	10	..	10	..	..	..	31	..	..	..	
	Planting 2,000 Eucalyptus seedlings from nursery pits round Top-slip	..	..		..	..	..	..	..	..	..	..	57	..	..	..	
	Undersowing Artocarpus Hirsuta	..	..		..	..	..	..	..	..	..	..	22	..	..	..	
	Formation of Hopea Nurseries	..	..		..	..	..	..	..	..	..	..	45	..	..	..	
	Total ..	..	..	..	..	..	..	..	..	..	(a) 4,045	4,293	55,538(b)	31,760	..	..	
	Punachi Working Circle.																
	Regeneration plots in Coupes IX and X ..	..	..	..	..	..	5	..	5	..	..	..	86	122	..	..	
	2-acre plot in Compt. II ..	..	..	..	..	..	2	..	2	..	..	..	75	27	..	..	
	3-acre plot in Compt. XV ..	..	..	..	..	..	3	..	3	..	..	..	146	98	..	..	
	1924 regeneration area in Coupes XIV and XVI. ..	..	..	..	..	..	25	..	25	..	..	60	524	1,119	..	..	
	10-acre plot in Coupe XV ..	..	..	..	..	..	10	..	10	..	..	..	245	404	..	..	

* Actual area regenerated.

(a) Only Rs. 2,575-9-0, has been adjusted to General forest administration so far the balance amount remains unadjusted which will be done by the Accountant General after completion of the audit of accounts for 1928-29.

(b) Excludes Rs. 846 spent on collection of seeds.

Progress in afforestation and regeneration under working plans or schemes during the year 1928-29—*cont.*

Division.	Working circle and block.	Period.	Area to be regenerated during the period.	Method of treatment.	Area in which regeneration was in progress at commencement of year (1st April 1928).	Area in which regeneration commenced during the year, 1st April 1928 to 31st March 1929.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year, 31st March 1927.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
							Previous.	During year, 1st April 1928 to 31st March 1929.	Total to 31st March 1927.		Creation.	Upkeep.	Creation.	Upkeep.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	Fifth Circle —*cont.*	YEARS.	ACS.		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.		
South Coimbatore—*cont.*	*Punachi Working Circle*—cont.															
	1925 regeneration area in Compt. XII and XIII.	..	..	..	..	..	25	..	25	..	..	..	431	25	..	..
	1925-26 Periodic block I ..	..	..	..	..	..	24	..	24	..	..	58	327	58	..	..
	1926-27 regeneration area .	..	..	..	..	..	25	..	25	..	..	59	22	120	..	..
	1928 Periodic block I ..	..	..	..	25	..	..	25	25	..	20	60	185	60	..	..
	1929 Periodic block I ..	..	25	..	..	25	..	..	..	25	89	..	89	..	..	..
	Total ..	..	..	..	..	..	..	..	..	..	109	* 237	2,130	2,033	..	..
Coimbatore, North.	*Mettupalaiyam Range.*															
	Manar Sandal Working Circle.	..	..	Dibbling sandal seeds.	..	..	132	..	132	..	..	..	69	75	..	..
	Jackanare Sandal Working Circle.	..	..	..	..	..	108	..	103	..	..	..	30	..	..	..

Madura.	Veeramalai Working Circle.	..	..	..	..	..	708	..	708	(a)	..	..	..	15	..	..
	Shemmalai Working Circle.	..	..	..	..	..	856		856		..	..	..	43	..	..
	Karuppur Reddiapatti Working Circle	..	..	..	..	..	671	..	671		..	..	..	17	..	..
	Sorupam, Panjanthangi Working Circle ..	..	..	..	..	..	290	..	290		..	..	..	22	..	..
	Vannathiparai Cumbum Valley experimental scheme ..	..	13	..	..	13	..	..	..	13	736	..	736	..	2,553	2,553
	Total ..	..	189	..	169	189	3,190	169	4,359	189	4,890	4,530	58,503	33,965	2,553	2,553
	SIXTH CIRCLE.															
Mangalore, North.	Coupes I catechu working series in Baindur and Wandse series.	1926-27.	375 acres in coupe I Baindur and 180 acres in coupe I Wandse series.	Fencing and sowing Acacia catechu at stakes 12' × 12' on filled pits 1'×1'× 10".	120 acres 51 in Baindur coupe I and 69 in Baindur coupe II.	..	..	..	..	120	..	20	352	275	..	..
	Coupe II of catechu working series.	1927-28.	580 acres in Baindur coupe II and 785 acres in Wandse coupe II.		75 acres in coupe II Baindur.	..	..	..	..	75	..	165	396	165	..	..
	Coupes III catechu working series.	1928-29.	550 acres in coupes III of Baindur series.		13 acres in coupe III Baindur.	..	..	..	..	13	86	..	86	..	..	..
			1,030 acres in coupe III Wandse series.		76 acres in coupe III Wandse series	..	..	..	..	76	440	..	440	..	..	..
	Total ..	..	3,500	..	284	..	..	..	..	284	526	185	1,274	440	..	..

* Rs. 186-6-0 was spent in addition on collection of seeds tending operations in C. XX weeding and creeper cutting in C. II and V and root wounding reserved trees in C. II.

(a) The District Forest Officer reports that these areas relate to some sowing done in blank areas some coupes in old Vayyampatti Range and should be deleted from this return as he thinks that these figures are misleading. They will be omitted from the next return.

Progress in afforestation and regeneration under working plans or schemes during the year 1928-29—*cont.*

(1) Division.	(2) Working circle and block.	(3) Period.	(4) Area to be regenerated during the period.	(5) Method of treatment.	(6) Area in which regeneration was in progress at commencement year (1st April 1928).	(7) Area on which regeneration commenced during the year, 1st April 1926 to 31st March 1929.	Area in which regeneration is complete. (8) Previous.	(9) During year, 1st April 1928 to 31st March 1929.	(10) Total to 31st March 1929.	(11) Area on which regeneration is still in progress at close of year, 31st March 1929.	Expenditure during the year. (12) Creation.	(13) Upkeep.	Expenditure from commencement of period. (14) Creation.	(15) Upkeep.	(16) Revenue during the year.	(17) Total revenue from date of creation.
	SIXTH CIRCLE —*cont.*	YEARS.	ACS.		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS	RS.	RS.
Palghat.	Walayar forests Pole Working Circle, Block I, compartment 3.	1926-27.	165	Teak stumps planting in patches where natural regeneration of seedlings or of coppice is insufficient.	..	..	181	..	181	..	..	217	2,245	1,056	..	..
	Pole Working Circle, Block II compartment 8. coupe I.	1927-28.	110		..	..	112	..	112	..	..	333	1,733	333	..	..
	Pole Working Circle, Block II, compartment 8, coupe II.	1928-29.	107		..	125	..	125	125	..	669		1,064	..	..	..
		1929-30.			..	..	..	..	..	..	317	..	454	..	..	..
		1930-31.			..	..	..	..	..	..	25	..	25	..	..	..
	Bolampatty forests Ponam Working Circle, compartment 17, coupe I.	1926-27.	47	Ponam ..	..	..	45	..	45	..	..	75	26	103	..	..
	Ponam Working Circle, compartment 16, coupe II.	1927-28.	53	Do. ..	..	..	44	..	..	..	..	268	3	268	..	..

Palghat—*cont.*	Ponam Working Circle compartment 16, coupe III.	1928–29.	30	Do. ..	..	25	..	25	25	..	90	..	111	..	..	..
		1929–30.	..	..	..	..	..	..	..	..	122	..	122	..	..	..
	Total ..	..	512	..	..	150	382	150	532	..	1,223	893	5,783	1,760	..	..
Nilambur.	Plantation Working Circle.	1928–29 to 1937–38.	(*a*) 98 5	Artificial..	(*b*) 227	106	..	247	247	86	5,080	..	7,455	..	..	..
	Conversion Working Circle.	Do.	2,209	Do.	85	177	..	94	94	168	6,778	..	9,314	..	..	..
	Beypore coconut tope.	1928–29	..	Do.	..	..	37	..	37	..	..	1,819	884	12,533	..	..
	Total ..	..	3,194	..	312	283	37	341	378	254	11,858	1,819	17,653	12,533	..	..
The Nilgiris. (*e*)	Mudumalai clear-felling Working Circle.	1927 to 1937.	300 acres.	Artificial regeneration.	(*c*) 10	12·5	10	10	20	12·5	382	..	1,393	217	665	1,379
	Do.	Do.	105 (one acre per 100.)	Dibbling sandal seeds.	..	1	..	1	1	..	3	..	3	..	..	..
	Sandal-wood area Segur Range.	1928–29.	25 acres.	Do.	..	(*d*) 25	..	25	25	..	84	..	84	..	..	..
	Sandalwood areas in Coonoor Range.	Do.	25 acres.	Do.	..	25	..	25	25	..	95	..	95	..	..	..
	Nilgiri plantations Aramby Block V. C. 17 (*b*).	Do.	3·7	..	..	3·7	..	3·7	3·7	..	95	12	95	12	..	..
	Baithie Block IV, C. 1.	Do.	1·5	Artificial regeneration by slanting blue gum.	..	1·5	..	1·5	1·5	..	27	..	27	..	..	..
	Nilgiri plantations Snowdon Block III compartment 2 (*b*).	Do.	1		..	4·5	..	4·5	4·5	..	44	..	44	..	..	..

(*a*) Does not include area to be regenerated with Hopea in miscellaneous felling series.
(*b*) Area actually dealt with including those formed in 1927 which were mostly unsuccessful.
(*c*) Out of 20 acres shown as completed to end of 1927–28 in the previous return only 10 acres were completed.
(*d*) The area dealt with in 1927–28 was a failure. It was redone in 1928–29 with a similar result.
(*e*) *The Nilgiris*—The item relating to regular plantations of 1886 shown in the previous return is omitted a swork is carried on from 1st April 1928 with reference to the revised working plan for the Nilgiri plantations.

Progress in afforestation and regeneration under working plans or schemes during the year 1928-29—*cont.*

(1) Division.	(2) Working circle and block.	(3) Period.	(4) Area to be regenerated during the period.	(5) Method of treatment.	(6) Area in which regeneration was in progress at commencement of year (1st April 1928).	(7) Area on which regeneration commenced during the year, 1st April 1928 to 31st March 1929.	Area in which regeneration is complete. (8) Previous.	(9) During year, 1st April 1928 to 31st March 1929.	(10) Total to 31st March 1929.	(11) Area on which regeneration is still in progress at close of year, 31st March 1929.	Expenditure during the year. (12) Creation.	(13) Upkeep.	Expenditure from commencement of period. (14) Creation.	(15) Upkeep.	(16) Revenue during the year.	(17) Total revenue from date of creation.
	SIXTH CIRCLE —*cont.*	YEARS.	ACS.		ACS.	ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
The Nilgiris —*cont.*	Snowdon Block III compartment 3	1928-29.	1	..	..	1·0	..	1·0	1·0	..	10	..	10	..	..	..
	Brook lands compartment 3.	Do.	5·6	..	..	5·0	..	5·0	5·0	..	211	..	211	..	..	..
	Spring field compartment 2.	Do.	5·2	..	..	5·2	..	5·2	5·2	..	145	..	145	..	..	..
	Spring field compartment 3.	Do.	5·8	..	..	5·2	..	5·2	5·2	..	141	..	141	..	..	..
	Total ..	..	478·8	..	10	89·6	10	87·1	97·	12·5	1,237	12	2,248	229	665	1,379
	Grand Total ..	..	7,684·8	..	606	522·6	429	578·1	1,007·1	550·5	14,844	2,909	26,958	14,962	665	1,379
	Grand Total, Presidency ..	..	25,689·8	..	1,492	1,638·2	8,479·8	1,059·2	1053·9	175·1	22,654	10,409	1,28,428	2,19,268	8,538	1,55,688

ANNUAL FORM NO 34-B.

Forest Department, Madras Presidency.

Plantations not under working-plans during the forest year 1928–29.

ANNUAL FORM

Forest Department,

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
FIRST CIRCLE.					
Regular Plantations.					
Guntur	Muthayapalam Casuarina.	5	..	..	5
Nellore	Planting	162	..	..	162
	Total ..	167	..	..	167
Taungya Operations.					
Godavari, Upper	Taungya operations ..	234	20	..	254
Cultural Operations.					
Visagapatam	Cultural operations, 1st March 1895.	10	..	(*a*) 10	..
Godavari, Upper	Clear-felling to establish a better quality of trees and tending, etc.	1,578	241	..	1,819
Godavari, Lower	Artificial regeneration with teak.	14	11	..	25
Guntur	Muthayapalam, 1912–13.	5	..	..	5
	Guttikonda, 1924–25 ..	6	..	..	6
	Venkatayapalem, 1926–27.	3	..	..	3
	Srigiripad, 1926–27 ..	3	..	..	3
	Davupalli and Kakirala, 1926–27.	1	..	..	1
	Nizampatam, 1926–27 ..	4	..	4	..
	Venkatayapalam, 1927–28.	0·5	..	..	0·5
	Venkatayapalem Sandal, 1927–28.	1	..	..	1
	Kondapalli Sandal, 1927–28.	1	..	..	1
	Srigiripad Sandal, 1927–28.	2·5	..	..	2·5
	Nachugunta, 1927–28 ..	0·2	..	..	0·2
	Guttikonda Parcelle 79, 1927–28.	10	..	..	10
	Guttikonda Parcelle 56, 1927–28.	1	..	..	1
	Guttikonda Extension 8, 1927–28.	1	..	..	1
	Bollapalli Parcelle 65, 1927–28.	10	10	..	20

No. 34-B.

Madras Presidency.

during the forest year 1928–29.

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
Rs.	Rs.	Rs.	Rs.	Rs.	Acs.	Rs.	Rs.	Rs.	Rs.
..	..	193	..	193	..	..	193	..	..
..	252	1,56,709	17,666	1,74,375	..	..	1,74,375	4,557	3,24,773
..	252	1,56,902	17,666	1,74,568	..	..	1,74,568	4,557	3,24,773
5	341	1,192	1,038	2,230	..	447	1,783	13,587	24,452
..	(*b*) 34	2	2,860	2,862	(*a*) 10	..	..	..	13,670
3,857	348	46,043	1,154	47,197	..	..	47,197	60,696	2,08,144
207	..	424	462	886	..	..	..	..	..
..	..	22	..	22	..	..	22	..	..
..	..	..	..	..	..	..	..	..	..
..	..	38	..	38	..	..	38	..	..
..	19	29	36	65	..	..	65	..	..
..	8	23	14	37	..	..	37	..	..
..	..	59	..	59	..	..	59	..	..
..	..	5	..	5	..	..	5	..	..
..	..	5	..	5	..	..	5	..	..
..	..	5	..	5	..	..	5	..	..
..	15	25	15	40	..	..	40	..	..
..	..	11	..	11	..	..	11	..	..
..	..	15	..	15	..	..	15	..	..
..	..	8	..	8	..	..	8	..	..
..	..	8	..	8	..	..	8	..	..
15	..	30	..	30	..	..	30	..	..

(*a*) The tope was disreserved in Chief Conservator of Forests, Mis. No. 398, dated 26th October 1928.

(*b*) Pay of watcher for four months.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres. At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
First Circle—*cont.*					
***Cultural Operations*—cont.**					
Guntur	Nayudupalem Block I, Babul, 1927-28.	5	5	..	10
Nellore	Sriharikota do. 1927-28.	3·8	..	..	3·8
	Kambakkam Sandal, 1927-28.	5	5	..	10
	Total ..	1,665	272	14	1,923
	Grand Total ..	2,066	292	14	713
Second Circle.					
Regular Plantations.					
Anantapur division— Hospet range	Moka 1907 to 1913 (casuarina and sissoo).	489	..	..	489
Kurnool East division ..	1908 Teak, Yegi, Nallamaddi and Sandal in Telugurayanicheruvu, Peddachama, Peddamantrala, Chinnamantrala and Maddipenta.	102	..	..	102
Do. South division ..	1923-24	71	..	..	71
Do. West division ..	1905-06	1,154	..	..	1,154
South Cuddapah (Kodur Red Sanders plantation.)	Formed in 1865, the trees being planted 9' × 8' apart.	20	..	..	20
	Total ..	1,836	..	..	1,836
Taungya Plantation.					
Kurnool West division ..	1921-22	322	..	..	322
Cultural Operations.					
Anantapur division— Hospet range	Kupgal, 1905-06	520	..	..	520
	Banavasi, 1905-06 ..	272	..	..	272
	Sivapuram Sandalwood, planting, 1927-28.	1	..	..	1
	Gunda Pangedu Seeds Dibbling, 1927-28.	10	10	..	20
Madanapalle range— Avalakonda reserve ..	Dibbling Sandalwood 1921-22.	6	..	..	6
Thettuvankaghattu (Sandalwood tope 9).	Do.	2	..	..	2

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
54	..	54	..	54	..	..	54	..	..
10	..	43	..	43	..	..	43	..	..
17	..	54	..	54	..	..	54	..	..
4,160	424	46,903	4,541	51,444	10	..	47,696	60,696	2,21,814
4,165	1,017	2,04,997	23,245	2,28,242	10	447	2,24,494	78,840	5,71,039
..	..	9,374	65,030	74,404	91	..	63,090	90	14,237
..	..	38,471	26,169	64,640	231	..	27,569	..	22
..	..	2,295	654	2,949	110	..	1,194	..	..
..	40	2,35,950	69,989	3,05,939	276	..	3,05,939	682	29,942
..	139	23	1,800	1,823	..	..	1,823	(a) 2,164	17,741
..	179	2,86,113	1,63,642	4,49,755	708	..	3,99,615	2,936	61,942
..	..	5,875	120	5,995	..	..	5,995	..	718
..	2	14,808	3,225	18,033	4,454	..	3,134	..	..
..	..	7,941	1,991	9,932	1,544	..	1,417	..	..
..	..	24	..	24	..	..	24	..	..
..	..	18	..	18	..	..	18	..	..
..	..	139	..	139	..	..	139	..	..
..	..	131	..	131	..	..	131	..	..

(a) Includes an amount of Rs. 848 obtained by sale of sandalwood (extracted from the plantation) realized by the District Forest Officer, Vellore.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
SECOND CIRCLE—*cont.*					
Cultural Operations—cont.					
Thattuvankaghatti (Sandalwood tope No. 10).	Dibbling, 1921–22 ..	2	..	..	2
Horsleykonda Reserved Forest (sandalwood).	Do. ..	4	..	..	4
Panchupad (sandalwood).	Dibbling, 1922–23 ..	4·10	..	..	4·10
Tavalam (sandalwood) ..	Do. ..	2	..	..	2
Horsleykonda Reserve Lantana cleared area.	Do. ..	815	55	155	715
Horsleykonda Reserved Forest.	Dibbling, 1925.	12	..	..	12
Do.	Planting Acacia sundra where sandal grows.	180	..	..	180
Horsleykonda (bamboos)..	Dibbling	11	..	..	11
Nigidi Reserved Forest ..	Sandal dibbling, 1927–28.	8	..	..	28
Madanapalle range—					
Tavalam Reserved Forest.	Dibbling sandal seeds, 1928–29.	..	1	..	1
Avulakonda Reserved Forest.	Do.	..	2	..	2
Horsleykonda Main Reserved Forest.	Do.	..	4	..	4
Horsleykonda Extension (B) Reserved Forest.	Do.	..	1	..	1
Eswaramala Reserved Forest.	Do.	..	1	1	..
Kokkanti Reserved Forest.	Do.	..	1	..	1
Themmala	Do.	..	2	1	1
Nigidi Reserved Forest.	Do.	..	3	..	3
Ganganapalle range—					
Ganganapalle Reserved Forest.	Do.	..	4	..	4
Ganganapalle Extension Reserved Forest.	Do.	..	4	..	4
Bukkapatnam range—					
Thummalamala Reserved Forest.	Do.	..	1	..	1
Kothakota Reserved Forest.	Do.	..	2	..	2
Vengalamma Cheruvu Reserved Forest.	Do.	..	1	1	..
Jameavulapalli	Do.	..	2	1	1
Mallappakonda Reserved Forest.	Do.	..	2	1	1
Nyalakota Reserved Forest.	Do.	..	2	1	1
Amagondapalem Reserved Forest.	Do.	..	2	..	2
Hospet range—					
Gunda Reserved Forest.	Do.	..	1	..	1
Moka	Do.	..	1	..	1

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement, excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	106	..	106	..	..	106	..	..
..	..	35	285	320	..	..	320	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
15	..	724	46	770	155	28	742	..	..
..	..	170	..	170	..	..	170	..	..
..	..	90	..	90	..	..	90	..	..
..	..	40	..	40	..	..	40	..	..
..	..	11	..	11	..	..	11	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	.	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..
8	..	8	..	8	..	..	8	..	..
5	..	5	..	5	..	..	5	..	..
..	..	..	..	..	..	..	..	..	..
6	..	6	..	6	..	..	6	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	1	..	..	..	..
4	..	4	..	4	1	2	2	..	..
..	..	..	..	..	1	..	..	..	..
5	..	5	..	5	..	..	5	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
SECOND CIRCLE—*cont.*					
Cultural Operations—cont.					
Hospet range—*cont.*					
Banavasi	Dibbling sandal seeds, 1928-29.	..	1	..	1
Kuppagal	Do.	..	1	1	..
Bandri	Do.	..	1	1	..
Somalapuram	Do.	..	1	1	..
Sivapuram	Do.	..	1	1	..
Vempalli range—					
Gorivikonama Reserved Forest.	Do.	..	4	..	4
Idupulapaya Reserved Forest.	Do.	..	4	..	4
Idupulapaya Extension.	Do.	..	3	..	3
Kurnool East division—					
Emergency coupes at Maddipenta.	Dibbling tangedu seeds in patches in 1928-29.	..	53	..	53
Emergency coupes in Chinnamantrala series.	Do.	..	67	..	67
Kurnool South division—					
Timber coupe II of Baireni series.	Maintenance of 200 seedlings per acre.	72	..	..	72
Timber Isukagundam ..	Do.	200	..	..	200
Timber Mamidigundam.	Do.	47	..	..	47
Timber Ulladavanka ..	Do.	57	..	..	57
Regeneration coupe No. II at Isukagundam.	Weeding	23	..	..	23
Kurnool West division ..	1919-20	7,140	..	..	7,140
	Total ..	9,408·10	238	165	9,481·10
	Grand Total ..	11,566	238	165	11,639
THIRD CIRCLE—Nil.					
FOURTH CIRCLE.					
Chittoor.					
Palmaner range—					
Mudivaripalle Tope (Red sanders and sandalwood).	Natural and planting, 1900.	14·65	..	14·65	Nil.
Nagamangalam Tope (sandalwood).	Do. 1885.	20·00	..	20·00	Nil.
Baireddipalli Tope (sandalwood).	Do. 1885.	4·10	..	4·10	Nil.
Venkatagirikota Tope (sandalwood).	Do. 1885.	8·83	..	8·83	Nil.
White Sides Garden (Red sanders, etc.).	Do. 1906.	13·40	..	13·40	Nil.

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement, excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation.	Upkeep.	Creation.	Upkeep.	Total.					
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	1	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	20	..	20	20	..	..	20	..	.
..	21	..	21	21	..	..	21	..	..
..	36	..	86	86	..	..	86	..	..
..	13	167	153	320	..	..	320	..	..
..	21	..	53	53	..	..	53	..	..
..	..	..	80	80	..	..	80	..	..
..	..	..	29	29	..	..	29	..	..
..	..	33,878	9,195	43,073	..	..	43,073	..	..
43	113	58,310 *	15,184 *	73,494 *	6,163 *	30 *	50,050*	..	..
43	292	3,50,298	1,78,946	5,29,244	6,871	30	4,55,660	2,936	62,660
..	..	..	1,228	1,228	..	..	1,228	..	120
..	..	..	2,234	2,234	..	..	2,234	..	21
..	..	..	482	482	..	..	482	..	17
..	..	..	3,076	3,076	..	..	3,076	..	6
..	..	..	6,851	6,851	..	..	6,851	..	39

* Differences are due to exclusion of areas where the operations were unsucessful in Kurnool East division which were shown as such in the last return.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres. At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
FOURTH CIRCLE—*cont.*					
Gudiyattam range—					
Pichanur Tope	Planting	31·00	..	31·00	Nil.
Chittoor Reserved Forest (Red Sanders).	Natural and dibbling, 1895.	387·20	..	387·20	Nil.
Chandragiri range—					
Panapakam old coupe No. 12 (sandalwood).	Dibbling	4·00	..	4·00	Nil.
All the new working circles (sandalwood).	Do.	23·00	..	23·00	Nil.
	Total ..	506·18	..	506·18	..
Vellore—					
Ambur Tope	Planting, 1913	6·00	..	..	6·00
Amerdi Plantation ..	Chenur-felling and artificially stocking with timber species, 1922–23.	92·25	..	..	92·25
	Total ..	98·25	..	..	98·25
Central Salem—					
Kurumbapatti plantation.	Sowing, 1920–21 ..	1·75	..	..	1·75
Ayyanthirumaligai ..	Do. 1923–24 ..	..	..	..	..
	Total ..	1·75	..	..	1·75
South Salem—					
Tope attached to the District Forest Officer's quarters.	Raising up mango trees, 1904.	9·5	..	..	9·5
	Grand Total ..	615·68	..	506·18	109·50
FIFTH CIRCLE.					
Madura—					
Gundan Shola Blue gum plantation.	....	245	..	..	245
Pambar pine plantation.	1906	842	..	..	842
Gundan valley ..	Planting accacia decurrens.	148	..	..	148
Velancombai teak plantation.	....	18	..	..	18
Vannathiparai teak plantation.	1870	4	..	..	4
Sethuvaikal new teak plantation.	1920–21	53	..	..	53
Alagar hills	Planting mahagony ..	3	..	..	3
	Total ..	1,313	..	..	1,313

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
Rs.	Rs.	Rs.	Rs.	Rs.	Acs.	Rs.	Rs.	Rs.	Rs.
..	..	..	894	894	..	..	894	..	1,328
..	..	..	2,032	2,032	..	..	2,032	..	..
..	..	57	..	57	..	..	57	..	..
..	..	..	7	7	..	..	7	..	..
..	..	57	16,804	16,861	..	..	16,861	..	1,531
..	..	..	10	10	..	..	10	10	1,643
..	55	3,102	2,202	5,304	..	..	5,304	85	7,318
..	55	3,102	2,212	5,314	..	..	5,314	95	8,961
..	..	202	34	236	..	..	236	..	..
..	..	131	69	200	..	..	200	..	..
..	..	333	103	436	..	..	436	..	..
..	(a) 268	467	2,760	3,227	..	..	3,227	..	280
..	323	3,959	21,879	25,838	..	..	25,838	95	10,772
..	..	18,985	..	18,985	..	..	18,985	979	5,327
3	138	33,486	4,778	38,264	..	..	38,264	59	909
.	15	3,106	131	3,237	..	..	3,237	..	..
..	..	1,124	142	1,266	..	..	1,266	..	2,315
..	..	1,405	..	1,405	..	..	1,405	..	2,125
6	..	3,770	728	4,498	..	..	4,498	..	..
..	..	64	..	64	..	..	64	..	..
9	153	61,940	5,779	67,719	..	..	67,719	1,038	10,676

(a) Cost of special repairs during the year to the well attached to the tope.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres. At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
FIFTH CIRCLE—*cont.*					
Tinnevelly—					
Kudiramoliterr	Dibbling palmyra nuts.	3,155	289	..	3,444
Kodamadi teak plantation.	1917	111	..	..	111
Kariar teak plantation, 1922-24.	....	82	3	..	85
Richmond plantation ..	1906	1	..	..	1
Kariarkani area ..	1912	23	..	..	23
Haynes plantation ..	....	23	..	..	23
Mundanthorai	Dibbling teak	..	10	..	10
	Total ..	3,395	302	..	3,697
Coimbatore, North—					
Minchigully plantation.	Dibbling teak, vengai and rosewood seeds, watering and weeding, 1918.	5	..	..	5
Ainagiri plantation ..	Planting seedlings of shola species, 1918.	42	..	..	42
	Total ..	47	..	..	47
	Grand Total ..	4,755	302	..	5,057
SIXTH CIRCLE.					
Mangalore, North—					
Someshwar	Sowing of Hopea, Dhupa and wild jack in prepared patches, 1920-21.	659	..	..	659
	Preparing the ground for sowing of teak, Xylia, rosewood, etc., in 1929-30 in 48 gaps formed by timber fellings in coupe IV, 1928-29, (Formal Sowings).	..	2	..	2
Jatkatmale	Sowing of Hopea and Dhupa in prepared patches, 1920-21.	1,143	..	4	1,139
Halesomeshwar ..	Sowing of Hopea in prepared patches, 1922-23.	1,754	..	10	1,744
Madibare	Sowing of Xylia in prepared patches, 1927-28.	9	2	..	11
Kodiamale	Sowing of Hopea in prepared patches, 1921-22.	52	..	..	52
	Total ..	3,617	4	14	3,607
Mangalore, South—					
Parappa, Compartment V (Portion).	Teak plantation, 1865 ..	52	..	35	17

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
388	..	6,637	1,830	8,477	..	..	8,467	930	50,915
..	..	4,236	1,193	5,429	..	..	5,429	..	78
93	..	1,642	731	2,373	..	..	2,373	..	..
..	..	5	..	5	..	..	5	..	94
..	..	47	310	357	..	..	357	..	178
..	..	26	37	63	..	..	63	..	..
182	..	182	..	182	..	..	182	..	..
663	..	12,775	4,101	16,876	..	..	16,876	930	51,265
..	..	123	618	741	..	..	741	..	..
..	..	670	522	1,192	..	..	1,192	..	..
..	..	793	1,140	1,933	..	..	1,933	..	..
672	153	76,508	11,020	86,528	.	..	86,528	1,958	61,941
..	522	2,593	1,882	3,975	19	..	3,867	..	..
67	..	67	..	67	..	..	67	..	..
..	201	3,122	5,228	8,350	156	288	7,581	..	..
445	732	6,118	3,611	9,729	99	..	9,454	..	..
6	20	121	20	141	..	..	141	..	..
..	..	145	14	159	..	..	159	..	..
528	1,475	12,166	10,255	22,421	274	288	21,269	..	..
..	..	10,357	320	10,677	..	..	10,677	9,433	11,941

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres			
		At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1928 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
SIXTH CIRCLE—*cont.*					
Mangalore, South—*cont.*					
Parappa, Compartment VI (Portion).	Sowing of deciduous species after clear-felling and burning, 1924.	16	..	..	16
Parappa, Compartment VIII (Portion).	Sowing of deciduous species after clear-felling and burning, 1926-27.	23	..	..	23
Parappa, Compartments I to X.	Sowing and planting of evergreen species (mainly Hopea.)	1,967	..	..	1,967
Parappa, Compartment IX (portion).	Sowing with Artocarpus hirusta Malia Dubia area felled in 1926-27.	21	..	..	21
Jalsur East, Coupes I and II.	Sowing and planting of Hopea under existing growth, 1920-21.	252	..	..	252
	Natural regeneration of evergreen species, 1926-27.	147	..	..	147
Pokala and Padnur ..	Sowing and planting of evergreen species (mainly Hopea)—1920-24.	1,405	..	..	1,405
Nerankimale Reserve ..	Clear-felling, burning and sowing deciduous species.	89		..	89
Kidu Reserve	Natural regeneration, 1926-27.	19	..	..	19
Nalkur Reserve Coupes I and II.	Natural regeneration of evergreen forests started in 1922.	1,154	..	..	1,154
Mundajekap Reserve ..	Sowing and planting of evergreen species (Hopea), 1926.	277	..	..	277
Do. ..	1927	132	..	..	132
	Total ..	5,554	..	35	5,519
Wynaad—					
	* Regular plantations ..	(a) 1,302	140	..	1,442
	* Taungya do. ..	700	..	..	700
	Cultural operations ..	232	..	..	232
	Total ..	2,234	140	..	2,374
Nilambur—Nil.	....	..	..	..	..
† The Nilgiris—Nil.	....	..	..	..	..
Palghat—					
Puliyampatti tope reserves.	Taungya plantations, 1919-20.	20	..	..	20

* Revised figures for columns (9), (10) and (11) adopted as the
(a) Revised figures adopted with reference
† The plantations shown in the return for 1927-28

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	99	106	205	..	..	205	..	..
..	46	407	192	599	..	..	599	..	..
..	42	5,456	5,255	10,711	275	1,021	9,690	..	..
138	..	305	30	335	..	197	138	..	..
..	51	1,541	2,485	4,026	..	..	4,026	..	..
..	29	289	4,542	4,831	..	..	4,831	..	..
..	99	6,520	6,678	13,198	214	217	12,981	..	..
..	29	357	537	894	..	..	894	..	..
..	25	..	170	170	..	..	170	..	..
..	130	..	8,257	8,257	..	..	8,257	..	..
..	229	1,725	522	2,247	..	..	2,247	..	..
..	159	624	159	783	..	..	783	..	..
138	909	27,680	29,253	56,933	489	1,435	55,498	9,433	11,941
8,970	4,291	54,961	40,997	95,958	38	680	95,278	} 95	33,534
..	73	453	12,353	12,806	..	2	12,804		
50	5	5,748	8,751	14,499	4,399	12,273	2,226	..	..
9,020	4,369	61,162	62,101	1,23,263	4,437	12,955	1,10,308	95	33,534
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	329	329	..	..	329	..	..

previous years figures did not include expenditure on failed areas.
to the correct area of the plantations.
have been omitted as they require no further treatment.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1928.	Added during year, 1st April 1928 to 31st March 1929.	Excluded during year, 1st April 1927 to 31st March 1929.	On 31st March 1929.
(1)	(2)	(3)	(4)	(5)	(6)
SIXTH CIRCLE—*cont.*					
Palghat—*cont.*					
Vellapatti	Cultural operations, 1919-20.	39	..	..	39
Muthikulam bungalow compound.	Cultural operations, 1921-22.	4	.	..	4
Palghat Range Office compound.	Cultural operations, 1919-20.	1	..	..	1
Dhoni reserve	Cultural operations, 1919-20.	10	..	..	10
Elival teak plantations. old.	Cultural operations, 1919-20.	10	..	..	10
Chenat Nair reserve ..	Cultural operations, 1920-21.	264	..	..	264
Elival teak plantation.	Cultural operations, 1928-29.	..	21	..	21
	Cultural operations, 1929-30.	..	..	..	..
	Cultural operations, 1930-31.	..	..	..	..
Sappal experimental plot.	Cultural operations, 1928-29.	..	5	..	5
	Cultural operations, 1929-30.	..	..	..	..
Dhoni 4 acre teak plot.	Cultural operations, 1928-29.	..	4	..	4
	Cultural operations, 1929-30.	..	..	..	..
	Cultural operations, 1930-31.	..	..	..	..
Experimental nursery for satin wood.	....	..	..	..	..
Evergreen nursery, Dhoni.	....	..	..	..	..
Nursery for coffee robusta.	....	..	..	..	..
Nursery Padkak (Andamans).	....	..	..	..	..
Regeneration Silent Valley.	....	..	..	..	..
Evergreen nursery in Silent Valley.	.. .	..	..	..	..
	Total ..	348	30	..	378
	Grand Total ..	11,753	174	49	11,878
	Parlakimedi Maliahs ..	186	21	8	199
	Grand Total, Presidency.	30,942	1,027	742	29,586

during the forest year 1928-29—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation.	Upkeep.	Creation.	Upkeep.	Total.					
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	573	59	632	..	..	632	..	.
	..	110	..	110	..	..	110	..	..
..	..	50	53	103	..	..	103	..	..
..	..	2,794	1,514	4,308	115	3,964	344	..	..
..	..	..	123	123	..	..	123	..	..
..	327	3,738	14,507	18,245	259	10,639	7,606	..	..
320	..	343	..	343	..	..	343	..	..
55	..	210	..	210	..	..	* 210	..	..
31	..	31	..	31	..	..	* 31	..	..
35	..	103	..	103	..	..	103	..	..
164	..	164	..	164	..	..	164	..	..
50	..	50	..	50	..	..	50	..	..
82	..	82	..	82	..	..	82	..	..
53	..	53	..	53	..	..	53	..	..
13	..	18	..	13	..	..	13	..	..
30	..	30	..	30	..	..	30	..	..
12	..	12	..	12	..	† 12	..		..
18	..	18	..	18	..	..	18	..	..
76	..	76	..	76	..	..	76	..	..
48	..	48	..	43	..	..	48	..	..
987	327	8,498	16,585	25,083	474	14,615	10,468	..	..
10,673	7,080	1,09,506	1,18,194	2,27,700	5,674	29,293	1,97,543	9,528	35,475
49	30-12-0	515-8-9	1,598-6-1	2,091-1-10	7	12	2,079-1-10	..	..
15,602	8,905	7,44,784	3,54,862	10,99,643	12,562	29,782	9,92,142	93,367	7,41,887

* Cost of nursery. † Failure.

ANNUAL FORM No. 35.

Forest Department, Madras Presidency.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928–29 and agency of exploitation.

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
FIRST CIRCLE.															
I. Reserved forests.															
Ganjam	91	67	28	3	189	12	57	..	..	69	..	..	..	..	..
Vizagapatam	5	..	..	..	5	2	5	..	..	7	..	..	..	..	..
Godavari, Upper ..	66	5	..	..	71	2	1	..	..	3	..	..	..	..	..
Do. Lower ..	1	23	.	..	24	2	..	..	..	2	..	..	..	..	..
Guntur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	163	95	28	3	289	18	63	..	..	81	..	..	..	..	..
II. Leased Forests—Nil.															
III. Reserved lands.—Nil.															
IV. Unreserved Lands—															
Ganjam	1	118	7	..	126	..	1	..	..	1	..	..	..	..	..
Vizagapatam	..	..	..	..	..	..	5	6	..	11	..	..	..	..	..
Godavari, Upper ..	26	..	1	..	27	3	26	2	..	31	..	..	..	..	..
Do. Lower ..	..	250	58	..	308	..	2	..	..	2	..	3	..	..	3
Guntur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	27	368	66	..	461	3	34	8	..	45	..	3	..	..	3
Grand Total ..	190	463	94	3	750	21	97	8	..	126	..	3	..	..	3

Vizagapatam.—The figures under unreserved lands are estimates furnished by Tahsildars.

Lower Godavari.—The figures under unreserved lands include 28 units of driftwood timber obtained by conversion of lease amounts at 0-1-6 per cubic foot.

Guntur.—The figures are estimates obtained by converting revenue at 0-1-0 per cubic foot.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928-29 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government. (17)	Purchasers. (18)	Free-grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free-grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free-grantees. (29)	Right-holders. (30)	Total. (31)	(32)
FIRST CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Ganjam	..	..	..	..	..	103	124	28	3	258	21	388	17	..	426	684
Vizagapatam	..	..	..	..	..	7	5	..	..	12	..	145	..	..	145	157
Godāvari, Upper ..	..	..	..	..	..	68	6	..	..	74	1	..	..	..	1	75
Do. Lower ..	..	..	..	..	..	3	23	..	..	26	14	869	41	..	924	950
Guntur	..	12	..	..	12	..	12	..	..	12	20	581	..	..	601	613
Nellore	1	..	..	..	1	1	..	..	..	1	1	2,748	..	..	2,749	2,750
Total ..	1	12	..	..	13	182	170	28	3	383	57	4,731	58	..	4,846	5,229
II. Leased Forests—Nil.																
III. Reserved lands—Nil.																
IV. Unreserved Lands.																
Ganjam	..	..	..	..	..	1	119	7	..	127	1	197	9	..	207	334
Vizagapatam	..	..	..	..	..	..	5	6	..	11	..	47	..	..	47	58
Godāvari, Upper ..	..	..	..	..	..	29	26	3	..	58	9	46	..	..	55	113
Do. Lower ..	..	..	..	..	..	..	255	58	..	313	..	53	..	..	53	366
Guntur ..	..	21	65	..	86	..	21	65	..	86	..	223	..	..	223	309
Nellore	..	10	298	..	308	..	10	298	..	308	..	30	..	..	30	338
Total ..	..	31	363	..	394	30	436	437	..	903	10	596	9	..	615	1,518
Grand Total ..	1	43	363	..	407	212	606	465	3	1,286	67	5,327	67	..	5,461	6,747

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928–29 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
SECOND CIRCLE.															
I. Reserved Forests.															
Anantapur	..	14	4	..	18	..	..	..	..	..	..	..	..	..	..
Kurnool, East ..	2	5	..	..	7	5	1	..	..	6	3	..	..	..	3
Do. South ..	22	95	..	..	117	..	23	3	..	26	..	..	..	..	..
Do. West ..	7	18	..	..	25	2	2	2	..	6	9	33	..	..	42
Cuddapah, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	31	132	4	..	167	7	26	5	..	38	12	33	..	..	45
II. Leased Forests—Nil.															
III. Reserved Lands—Nil.															

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928–29 and agency of exploitation—cont.

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government (17)	Purchasers. (18)	Free-grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free-grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free-grantees. (29)	Right-holders. (30)	Total. (31)	(32)
SECOND CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Anantapur ..	..	..	..	..	..	..	14	4	..	18	1	54	..	..	55	73 †
Kurnool, East ..	1	..	..	..	1	11	6	..	..	17	6	60	1	..	67	84 †
Do. South ..	3	5	..	..	8	25	123	3	..	151	5	198	..	..	203	354 †
Do. West ..	..	..	..	..	..	18	53	2	..	73	289	362	1	..	652	725 †
Cuddapah, North ..	34	25	10	..	69	* 34	25	10	..	69	* 51	755	..	..	806	875 †
Do. South ..	..	82	4	..	86	..	82	4	..	86	3	2,971	..	..	2,974	3,060 †
Total ..	38	112	14	..	164	88	303	23	..	414	355	4,400	2	..	4,757	5,171
II. Leased Forests—Nil.																
III. Reserved Lands—Nil.																

* Represents stock obtained mainly from wind-falls and confiscated stock.

† Actuals.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928-29 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
SECOND CIRCLE—*cont.*															
IV. Unreserved Lands.															
Anantapur ..	..	246	4	..	250	..	..	..	..	..	..	..	..	..	..
Kurnool, East ..	..	4	1	..	5	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	13	..	..	13	..	..	..	..	..	..	..	..	..	..
Do. West ..	..	47	..	..	47	..	..	..	..	..	..	..	..	..	..
Cuddapah, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	310	5	..	315	..	..	..	..	..	..	..	..	..	..
Grand Total ..	31	442	9	..	482	7	26	5	..	38	12	33	..	..	45

Outturn (*in thousands of cubic feet, solid*) of timber and fuel during the year 1928-29 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.	
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.		
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	
SECOND CIRCLE—*cont.*																	
IV. Unreserved Lands —cont.																	
Anantapur ..	..	..	..	..	..	..	246	4	..	250	..	125	..	..	125	375	
Kurnool, East ..	..	..	..	..	..	..	4	1	..	5	..	6	..	..	6	11	(*a*)
Do. South ..	..	..	..	..	..	..	13	..	..	13	..	22	..	..	22	35	
Do. West ..	..	..	..	..	..	..	47	..	..	47	..	56	..	..	56	103	
Cuddapah, North ..	..	36	..	..	36	..	36	..	..	36	..	117	..	..	117	153	(*b*)
Do. South ..	..	6	..	..	6	..	6	..	..	6	..	13	..	..	13	19	(*c*)
Total ..	..	42	..	..	42	..	352	5	..	357	..	339	..	..	339	690	
Grand Total ..	38	154	14	..	206	88	655	28	..	771	355	4,739	2	..	5,096	5,867	

(*a*) Estimates based on Revenue collected by Tahsildars. Timber Rs. 2-8-0 per cart-load of 20 cubic feet, firewood Rs. 1-4-0 per cart-load of 20 cubic feet

(*b*) Furnished by Treasury Officers.

(*c*) Estimates based on Revenue collected by Tahsildars at Rs. 2-8-0 per cart-load of Timber of 20 cubic feet and Rs. 1-4-0 per cart-load of fuel of 20 cubic feet.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928-29 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
FOURTH CIRCLE.															
I. Reserved Forests.															
Chittoor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vellore	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Salem, North ..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	2
Do. Central ..	(*a*) 1	19	..	..	20	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	(*a*) ½ (*a*) ½	..	..	..	1
Total ..	2	19	..	..	21	..	..	..	..	..	3	..	..	..	3
II. Leased Forests—Nil.															
III. Reserved Lands—Nil.															
IV. Unreserved Lands.															
Chittoor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Salem, North ..	..	..	..	..	..	..	85	..	..	85	..	..	..	..	..
Do. Central ..	..	..	15	..	15	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	15	..	15	..	85	..	..	85	..	..	..	..	..
Grand Total ..	2	19	15	..	36	..	85	..	..	85	3	..	..	..	3

(*a*) Denotes sandalwood.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928–29 and agency of exploitation—cont.

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government. (17)	Purchasers. (18)	Free-grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free-grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free-grantees. (29)	Right-holders. (30)	Total. (31)	(32)
FOURTH CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Chittoor	2	5	3	..	10	2	5	3	..	10	15	423	..	..	438	448
Vellore ..	(*a*) 5	4	..	..	9	6	4	..	..	10	49	541	..	..	590	600
Salem, North ..	(*a*) 7	1	..	..	8	9	1	..	..	10	1	22	..	..	23	33
Do. Central ..	..	.	..	..	..	1	19	..	..	20	26	278	..	..	304	324
Do. South ..	..	..	1	..	1	1	..	1	..	2	13	147	..	..	160	162
Total ..	14	10	4	..	28	19	29	4	..	52	104	1,411	..	..	1,515	1,567
II. Leased Forests—Nil.																
III. Reserved Lands—Nil.																
IV. Unreserved Lands—cont.																
Chittoor	..	36	4	..	40	..	36	4	..	40	..	40	..	..	40	80
Vellore ..	.	212	9	..	221	..	212	9	..	221	..	252	..	..	252	473
Salem, North ..	(*a*) 1	..	..	..	1	1	85	..	..	86	..	12	..	..	12	98
Do. Central ..	..	147	..	..	147	..	147	15	..	162	..	61	..	..	61	223
Do. South ..	..	93	6	..	99	..	93	6	..	99	..	97	..	..	97	196
Total ..	1	488	19	..	508	1	573	34	..	608	..	462	..	..	462	1,070
Grand Total ..	15	498	23	..	536	20	602	38	..	660	104	1,873	..	..	1,977	2,637

(*a*) Denotes sandalwood.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928-29 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
FIFTH CIRCLE.															
I. Reserved Forests.															
Kollegal	4	1	..	..	5	..	1	..	..	1	..	1	..	..	1
Coimbatore, North ..	1	..	..	..	1	5	1	..	..	6	10	..	..	..	10
Do. South ..	1	..	..	..	1	..	..	..	..	..	65½	..	..	..	65½
Madura	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Tinnevelly	1	80	..	..	81	2	2	..	..	4	12	5	..	..	17
Total ..	8	81	..	..	89	7	4	..	..	11	87½	6	..	..	93½
II. Leased Forests.															
Coimbatore, South ..	134	..	..	..	134	..	..	..	..	..	..	..	..	..	..
III. Reserved Lands—Nil.															
IV. Unreserved Lands.															
Kollegal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore, North ..	..	33	1	..	34	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Total ..	..	34	1	..	35	..	..	..	..	..	..	..	..	..	..
Grand Total ..	142	115	1	..	258	7	4	..	..	11	87½	6	..	..	93½

Note for the Fifth Circle.

Unreserved Lands.—Estimate based on money value collected as the Tahsildars have not furnished the actual outturn :—

Kollegal and Coimbatore, North.— { Sandalwood—Factor of conversion—2 grs. = 1 cubic foot.
Agricultural implements—Factor of conversion—Each implement = 1 cubic foot.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928–29 and agency of exploitation—cont.

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
FIFTH CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Kollegal	..	2	..	..	2	4	5	..	..	9	..	328	..	..	328	337
Coimbatore, North ..	..	..	..	..	.	16	1	..	..	17	27	781	..	..	808	825
Do. South ..	..	10	..	..	10	66½	10	..	..	76½	86	133	..	..	219	295½
Madura	..	8	..	..	8	1	8	..	..	9	62	740	..	..	802	811
Tinnevelly	2	1	..	..	3	17	88	..	..	105	234	587	..	..	821	926
Total ..	2	21	..	..	23	104½	112	..	..	216½	409	2,569	..	..	2,978	3,194½
II. Leased Forests—cont.																
Coimbatore, South ..	9	..	..	..	9	143	..	..	..	143	..	..	..	..	..	113
III. Reserved Lands—Nil																
IV. Unreserved Lands—cont.																
Kollegal	..	14	..	..	14	..	14	..	..	14	..	14	..	..	14	28
Coimbatore, North ..	..	..	..	..	..	..	33	1	..	34	..	45	..	..	45	79
Do. South ..	..	24	4	..	28	..	24	4	..	28	..	20	..	..	20	48
Madura	..	239	5	..	244	..	239	5	..	244	..	142	..	..	142	386
Tinnevelly	..	..	7	..	7	..	1	7	..	8	..	89	..	..	89	97
Total ..	..	277	16	..	293	..	311	17	..	328	..	310	..	..	310	638
Grand Total ..	11	298	16	..	325	247½	423	17	..	687½	409	2,879	..	..	3,288	3,976½

Note for the Fifth Circle.

Unreserved lands.—Estimate based on money value collected as the Tahsildars have not furnished the actual outturn :—

Kollegal and Coimbatore, North.— { Sandalwood—Factor of conversion—2 qrs. = 1 cubic foot.
Agricultural implements—Factor of conversion—Each implement = 1 cubic foot.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928-29 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
SIXTH CIRCLE															
I. Reserved Forests.															
Mangalore, North ..	58	..	..	..	58	1	..	..	..	1	..	..	..	..	..
Do. South ..	209	28	..	..	237	..	..	..	..	..	..	..	..	..	..
Wynad	81	1	..	..	82	9	..	..	..	9	104	..	..	..	104
Nilambur	158	1	..	..	159	52	..	..	..	52	..	..	..	..	..
The Nilgiris	41	3	..	..	44	..	..	..	..	..	..	..	..	..	..
Palghat	257	49	..	..	306	..	..	..	..	..	..	..	..	..	..
Total ..	804	82	..	..	886	62	..	..	..	62	104	..	..	..	104
II. Leased Forests.															
Nilambur	149	8	..	..	157	34	..	..	..	34	..	..	..	..	..
III. Reserved Lands.															
The Nilgiris	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
IV. Unreserved Lands.															
Mangalore, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wynad	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nilambur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Palghat	..	9	..	..	9	..	..	..	..	..	..	..	..	..	..
Total ..	..	10	..	..	10	..	..	..	..	..	..	..	..	..	..
Grand Total ..	953	100	..	..	1,053	96	..	..	..	96	104	..	..	..	104
Grand Total, Presidency.	1,318	1,139	119	3	2,579	131	212	13	..	356	206½	42	..	..	248½

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1928–29 and agency of exploitation—cont.

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government. (17)	Purchasers. (18)	Free-grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free-grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free-grantees. (29)	Right-holders. (30)	Total. (31)	(32)
SIXTH CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Mangalore, North ..	..	6	..	..	6	59	6	..	..	65	36	547	..	..	583	648
Do. South ..	..	6	..	..	6	209	34	..	..	243	8	113	..	..	121	364
Wynad	..	..	..	..	..	194	1	..	..	195	..	..	..	..	..	195
Nilambur	..	..	..	..	..	210	1	..	..	211	1	2	..	..	3	214
The Nilgiris ..	..	..	..	..	..	41	3	..	..	44	461	18	..	..	479	523
Palghat	..	..	..	..	..	257	49	..	..	306	4	425	..	..	429	735
Total ..	..	12	..	..	12	970	94	..	..	1,064	510	1,105	..	..	1,615	2,679
II. Leased Forests—cont.																
Nilambur	..	..	..	..	..	183	8	..	..	191	1	..	..	..	1	192
III. Reserved Lands—cont.																
The Nilgiris	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	1
IV. Unreserved Lands—cont.																
Mangalore, North ..	..	18	1	10	29	..	18	1	10	29	..	53	..	..	53	82
Do. South ..	..	23	..	2	25	..	23	..	2	25	..	25	..	..	25	50
Wynad	..	8	..	..	8	..	8	..	..	8	..	..	..	..	..	8
Nilambur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris ..	..	..	..	..	..	..	1	..	..	1	..	19	..	..	19	20
Palghat	..	..	3	..	3	..	9	3	..	12	..	64	..	..	64	76
Total ..	..	49	4	12	65	..	59	4	12	75	..	161	..	..	161	236
Grand Total ..	..	61	4	12	77	1,153	161	4	12	1,330	511	1,266	1	..	1,778	3,108
Grand Total, Presidency.	65	1,054	420	12	1,551	1,720½	2,447	552	15	4,734½	1,446	15,084	70	..	17,600	22,334½ (a) + 218½ (b) 22,683

(a) Added to represent the log equivalent of sawn timber.
(b) The total outturn excludes the figures for Parlakimedi Maliahs (i.e., 41 cubic feet of timber and 152 cubic feet of fuel).

ANNUAL FORM No. 36.

Forest Department, Madras Presidency.

Outturn of minor forest produce during the year 1928–29.

Circle.	Description of produce.	Produce removed or utilized					
		By Government agency.		By purchasers.	By free grantees.	By right-holders	Total.
		Quantity.	Value.	Value.	Value.	Value.	Value.
		NO.	RS.	RS.	RS.	RS.	RS.
First Circle.	*Reserved forests.*						
	Bamboos	41,684	209	80,176	323	63	80,774
	Grazing	..	..	1,15,087	12,733	2,248	1,30,068
	Other produce.						
	Grass (hay, thatch, etc.), quarts of 28 lb.	14,756	37	1,669	..	..	1,706
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi, etc.	8,299	4,993	12,283	..	..	17,276
	Horns, honey, wax, resin, gum, skins, etc.	..	..	796	..	..	796
	Tangedu, etc., barks and fibres sarasparilla.	162	553	10,006	..	..	10,559
	Date and palmyra leaves, stalks, modugu leaves, etc.	580	2,565	884	..	..	3,449
	Manure leaves and thorns ..	..	..	1,178	..	..	1,178
	Stone, gravel, etc.	..	..	256	..	..	256
	Miscellaneous, including tree-tapping and tree-owners' fees.	108	43	3,719	..	..	3,762
	Total, other produce ..	23,905	8,191	30,791	..	..	38,982
	Total, Reserved forests ..	..	8,400	2,26,054	13,059	2,311	2,49,824
	Reserved lands.						
	Bamboos	..	..	45,874	..	..	45,874
	Other produce.						
	Grass (hay, thatch, etc.) ..	..	..	98	..	..	98
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi, etc.	..	..	17,657	..	..	17,657
	Horns, honey, wax, resin, gum, etc.	..	..	401	..	..	401
	Tangedu, etc., barks and fibres.	..	..	701	..	..	701
	Total, other produce ..	..	..	18,857	..	..	18,857
	Total, Reserved lands ..	..	..	64,731	..	..	64,731
	Unreserves.						
	Bamboos	17,198	150	2,262	515	..	2,927

Outturn of minor forest produce during the year 1928-29—*cont.*

Circle.	Description of produce.	Produce removed or utilized					
		By Government agency.		By purchasers.	By free grantees.	By right-holders.	Total.
		Quantity.	Value.	Value.	Value.	Value.	Value.
	Other produce.	NO.	RS.	RS.	RS.	RS.	RS.
First Circle—*cont*	Grass (hay, thatch, etc.) ..	6,190	61	263	..	..	324
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi, etc.	36	25	1,713	..	..	1,738
	Tangedu, etc., barks and fibres.	..	..	2,861	..	..	2,861
	Horns, honey, wax, resin, gum, etc.	..	..	5	..	..	5
	Date and palmyra leaves, stalks, etc.	..	..	378	4,140	..	4,518
	Stone, gravel, etc.	..	..	2,128	..	..	2,128
	Miscellaneous, including tree-owners' fees, etc.	41	17	61,567	346	..	61,870
	Total, other produce ..	6,267	103	68,855	4,486	..	73,444
	Total, Unreserved land ..	..	253	71,117	5,001	..	76,371
	Abstract.						
	Bamboos	58,782	359	1,28,312	841	63	1,29,575
	Grazing	..	..	1,15,087	12,733	2,248	1,30,068
	Other Minor Forest produce ..	..	8,294	1,16,503	4,486	..	1,31,283
	Total ..	58,782	8,653	3,61,902	18,060	2,311	3,90,926
	Reserves.						
	Bamboos	43,891	889	65,759	185	75	66,908
	Grazing	..	..	*1,63,713	71	3,697	1,67,481
	Fodder grass	..	..	2,206	..	..	2,206
	Penning fees	..	..	2,265	..	..	2,265
	Total, Grazing fees ..	..	..	1,68,184	71	3,697	1,71,952
Second Circle.	*Minor forest produce.*	QRS. OF 28 LB.					
	Grass (hay, thatch, etc.) ..	2,261	130	1,018	29	..	1,177
	Tamarind, soapnuts and nux-vomica.	7	15	2,302	..	..	2,317
	Stone, gravel and earth ..	..	..	5,303	66	..	5,369
	Date, palmyra and plate leaves.	..	..	1,100	..	..	1,100
	Manure leaves, bats' dung and thorns.	..	..	2,845	20	..	2,865
	Tumki leaves	..	..	8,515	..	..	8,515
	Horns, honey, wax, resin, gum and galnuts.	111	401	4,821	..	..	5,222
	Tangedu, rela, yepi and seeds.	1,679	65	22,902	..	..	22,967
	Miscellaneous including tree-tapping fees and amaroy.	4	2	4,673	..	..	4,675
	Total, Minor forest produce ..	4,062	613	53,479	115	..	54,207
	Grand Total of grazing and minor forest produce.	4,062	613	2,21,663	186	3,697	2,26,159

* Includes Rs. 1,890 relating to penning fees as under :—
Rs. 1,791 Cuddapah South.
Rs. 99 Anantapur.

Outturn of minor forest produce during the year 1928-29—*cont.*

Circle.	Description of produce.	Produce removed or utilized					
		By Government agency.		By purchasers.	By free grantees.	By right-holders.	Total.
		Quantity.	Value.	Value.	Value.	Value.	Value.
		NO.	RS.	RS.	RS.	RS.	RS.
Second Circle—*cont.*	*Unreserves.*						
	Bamboos	..	..	..	..	..	..
	Minor forest produce.						
	Tamarind, soapnuts and nux-vomica.	..	..	55,083	..	..	55,083
	Stone, gravel and earth ..	..	..	1,826	..	..	1,826
	Date, palmyra and plate leaves.	..	..	494	6	..	500
	Manure leaves, bats' dung and thorns.	..	..	234	..	..	234
	Tangedu, rela, yepi and seeds ..	..	..	1,78,427	..	..	1,78,427
	Miscellaneous, including tree tapping fees and amaroy.	..	..	1,01,549	..	..	1,01,549
	Tumki leaves	..	..	2,036	..	..	2,036
	Total of minor forest produce ..	..	..	3,39,649	6	..	3,39,655
	Grand total of bamboos of reserves and unreserves.	43,891	889	65,759	185	75	66,908
	Grand total of grazing and minor forest produce of reserves and unreserves.	QRS. OF 28 LB 4,062	613	5,61,312	192	3,697	5,65,814
Fourth Circle.	Bamboos	399	37	1,22,737	1,970	..	1,24,744
	Grass and grazing	..	..	2,05,804	..	..	2,05,804
	Thatch grass	..	..	93	..	..	93
	Thangedu, konnai and avaram-bark.	..	..	32,056	..	..	32,056
	Manure leaves	..	..	11,269	..	..	11,269
	Stone, gravel, sand, etc. ..	..	..	7,136	..	..	7,136
	Tree owner's fees	..	..	10,932	..	..	10,932
	Nux-vomica, tamarind, gal-nuts, seeds and other items of minor forest produce.	QRS. 513	358	1,02,147	513	..	1,03,018
	Grand Total ..	513	358	1,63,633	513	..	1,64,504
	Total ..	..	395	4,92,174	2,483	..	4,95,052
Fifth Circle.	*Reserved forests.*						
	Bamboos	1,270	4	39,283	8	..	39,295
	Grazing	..	..	1,33,729*	..	1,242	1,34,971
	Fodder grass	..	..	1,467	..	..	1,467
	Total ..	..	..	1,35,196	..	1,242	1,36,438

* 2,173 is the revenue received from panchayats.

Outturn of minor forest produce during the year 1928-29—*cont.*

Circle.	Description of produce.	Produce removed or utilized					
		By Government agency.		By purchasers.	By free grantees.	By right-holders.	Total.
		Quantity.	Value.	Value.	Value	Value.	Value.
		NO. QRS.	RS.	RS.	Rs.	RS	RS.
Fifth Circle—*cont.*	*Other produce.*						
	Grass (thatch, korai, etc.) ..	3,680	29	500	..	..	529
	Dammar, turmeric, pepper, cardamoms, etc.	..	..	17,084	..	..	17,084
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi.	..	..	21,896	..	..	21,896
	Horns, honey, wax, gum, resin, skin, etc.	..	..	4,786	..	..	4,786
	Avaram, vembadam, etc., barks and fibres.	..	..	18,701	..	..	18,701
	Stones, earth, gravel, etc. ..	..	..	1,898	..	..	1,898
	Manure leaves, thorns, etc. ..	..	..	2,039	..	..	2,039
	Date and palmyra leaves, etc. ..	..	..	2,711	..	612	3,323
	Elephant tusks	4	582	..	..	..	582
	Miscellaneous	107	1	12,564	..	..	12,565
	Total ..	3,791	612	82,179	..	612	83,403
	Unreserved lands.						
	Bamboos	..	..	512	..	..	512
	Other produce.						
	Avaram, vembadam, etc., etc., barks and fibres.	..	..	20,316	..	..	20,316
	Grass (thatch, korai, etc.) ..	..	..	2,461	..	..	2,461
	Stones, gravel, earth, etc. ..	..	..	8,093	..	..	8,093
	Tamarind, soapnuts, galnuts, nux-vomica, etc.	..	..	50	..	..	50
	Miscellaneous	..	..	5,432	10	..	5,442
	Date leaves, palmyra leaves, etc.	..	..	13,417	413	..	13,830
	Total ..	..	..	49,789	423	..	50,212
	Abstract.						
	Bamboos	1,270	4	39,795	8	..	39,807
	Grazing and fodder grass ..	..	..	1,35,196	..	1,242	1,36,438
	Other produce	3,791	612	1,31,968	423	612	1,33,615
	Total ..	..	616	3,06,959	431	1,854	3,09,860
Sixth Circle.	*Reserved forests.*						
	Bamboos	72,725	4,693	25,876	21	..	30,590
	Grazing and fodder grass ..	..	333	31,741	277	..	32,351
	Other produce.						
	Catechu	..	..	7,893	..	..	7,893
	Stones, gravels, etc.	..	..	180	1,833	..	2,013
	Blue gum leaves	..	..	432	..	..	432
	Canes	..	..	2,005	..	..	2,005
	Wood oil	..	..	630	..	..	630
	Honey, wax	57	633	..	..	..	633
	Cocoanuts	..	..	3,822	..	..	3,822
	Other items, including tusks ..	..	1,176	23,053	..	..	24,229
	Total ..	57	1,809	98,016	1,833	..	41,657
	Total Reserves ..	..	6,835	95,632	298	..	1,02,765

Outturn of minor forest produce during the year 1928-29—*cont.*

Circle.	Description of produce.	Produce removed or utilized					
		By Government agency.		By purchasers.	By free grantees.	By right-holders.	Total.
		Quantity.	Value.	Value.	Value.	Value.	Value.
		NO.	RS.	RS.	RS.	RS.	RS.
Sixth Circle—*cont.*	*Reserved lands.*						
	Bamboos	185	23	195	..	..	218
	Grazing and fodder grass	..	..	..	672	..	672
	Other minor produce	..	..	..	5	..	5
	Total	..	23	195	677	..	895
	Leased forests.						
	Bamboos	55,908	4,201	5	..	..	4,206
	Other minor forest produce	29	2	256	..	..	258
	Total	..	4,203	261	..	..	4,464
	Unreserved lands.						
	Bamboos	..	..	53	..	..	53
	Other minor forest produce.						
	Stones, gravel, etc.	..	..	908	..	..	908
	Other items	..	..	10,109	..	..	10,109
	Total	..	..	11,017	..	..	11,017
	Total, Unreserved lands	..	..	11,070	..	..	11,070
	Abstract for the Sixth Circle.						
	Bamboos	128,818	8,917	26,129	21	..	35,067
	Grazing and fodder grass	..	333	31,741	949	..	33,023
	Other produce	..	1,811	49,288	1,838	..	52,937
	Total	..	11,061	1,07,158	2,808	..	1,21,027
	Parlakimedi Maliahs.						
	Bamboos	..	53	4,404	288	391	5,136
	Grazing	..	..	1,427	..	..	1,427
	Minor produce	..	238	30,435	59	44	30,776
	Total	..	291	36,266	347	435	37,339
Total, Presidency.	*Abstract.*						
	Bamboos	238,160	10,259	3,87,141	3,318	529	4,05,443
	Grazing	..	333	6,57,439	13,753	7,187	6,78,712
	Minor produce	8,366	11,926	8,86,955	7,440	656	9,06,977
	Grand Total, Presidency	241,526	22,518	19,31,535	24,506	8,372	19,91,132

Annual Form No. 37.

Forest Department, Madras Direction.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of, during 1928–29.

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
TIMBER (IN THOUSANDS OF CUBIC FEET).					
First Circle.					
Ganjam	300	104	404	(a) 252, (b) 5	147
Vizagapatam	..	7	7	(a) 4, (c) 1	2
Godavari, Upper	72	97	169	(a) 93, (c) 4	66
Do. Lower	3	3	6	(a) 4, (c) 2	..
Guntur	..	..	..	..	..
Nellore	..	1	1	..	1
Total ..	375	212	587	371	216
Second Circle.					
Anantapur	..	..	..	..	..
Kurnool, East	2	11	13	12	1
Do. South	16	25	41	40	1
Do. West	12	18	30	(a) 18, (a) (b) 1	11
Cuddapah, North	1	34	35	34	1
Do. South	2	..	2	2	..
Total ..	33	88	121	107	14
Fourth Circle.					
Chittoor	..	2	2	2	..
Vellore	1	(a) 6, 47	54	53	1
Salem, North	1	10	11	10	1
Do. Central	..	1	1	1	..
Do. South	..	1	1	1	..
Total ..	2	67	69	67	2

Note for the First Circle.—(a) Sold departmentally. (b) Written off. (c) Used departmentally.
Note for the Second Circle.—(a) Sold departmentally. (b) Used departmentally.
Note for the Fourth Circle.—(a) Received from other districts.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of, during 1928-29—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
TIMBER (IN THOUSANDS OF CUBIC FEET)—*cont.*					
Fifth Circle.					
Kollegal	..	4	4	4	..
Coimbatore, North	2	16	18	17	1
Do. South	80	170	250	144	106
Madura	3	2	5	4	1
Tinnevelly	1	16	17	15	2
Total ..	86	208	294	184	110
Sixth Circle.					
Mangalore, North ..	47	59	106	49 (*a*) 2	55
Do. South	68	279	347	93 (*a*) 9 (*b*) 2 (*c*) 80 (*d*) 34	(*f*) 120
Wynaad	134	274	408	(*e*) 160 (*a*) 7 (*b*) 42 (*c*) 36 (*d*) 64	(*f*) 99
Nilambur	299	393	692	302	390
The Nilgiris	67	41	108	36	72
Palghat	1	46	47	36	11
Total ..	616	1,092	1,708	961	747
Chief Forest Engineer.					
Utilization division	31	197·2	228·2	146·1	82·1
Sawmills and Extraction division.	104 6	20·1	305·6	222·9	82·7
Total ..	135·6	398·2	533·8	368·9	164·9
Parlakimedi Maliahs ..	·7	3·6	4 3	3·5	·8
Grand Total, Presidency ..	1,248	2,069	3,317	2,062	1,255
FUEL (IN THOUSANDS OF CUBIC FEET).					
First Circle.					
Ganjam	16	22	38	(*a*) 23 (*b*) 1	14
Godavari, Upper	..	10	10	(*a*) 10	..
Do. Lower	11	14	25	(*a*) 2 (*b*) 8 (*c*) 1	14
Guntur	4	20	24	22	2
Nellore	..	1	1	(*a*) 1	..
Total ..	31	67	98	68	30

Note for the Sixth Circle.—(*a*) Used departmentally.
(*b*) Written off.
(*c*) Supplied to sawmills.
(*d*) Supplied to depots in chage of the Forest Utilization Officer.
(*e*) Includes stock with Messrs. Pierce & C.E.
(*f*) Includes depots in charge of the Forest Utilization Officer.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1928-29—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
FUEL (IN THOUSANDS OF CUBIC FEET)—*cont.*					
Second Circle.					
Anantapur	..	1	1	1	..
Kurnool, East	7	6	13	13	..
Do. South	..	5	5	2	3
Do. West	29	289	318	(*a*) 221	96
				(*c*) 1	
Cuddapah, North	21	51	72	60	12
Do. South	..	3	3	3	..
Total ..	57	355	412	301	111
Fourth Circle.					
Chittoor	3	15	18	9	9
Vellore	6	49	55	8	47
Salem, North	..	1	1	1	..
Do. Central	4	26	30	24	6
Do. South	19	13	32	21	11
Total ..	32	104	136	63	73
Fifth Circle.					
Coimbatore, North	..	27	27	27	..
Do. South	..	86	86	86	..
Madura	..	62	62	56	6
Tinnevelly	1	234	235	224	11
Total ..	1	409	410	393	17
Sixth Circle.					
Mangalore, North ..	31	36	67	26	41
Do. South ..	..	8	8	8	..
Nilambur	..	2	2	2	..
The Nilgiris	(*f*) 172	461	633	402	230
				(*a*) 1	
Palghat	1	4	5	5	..
Total ..	204	511	715	444	271
Parlakimedi Maliahs ..	11,600	80,000	91,600	69,500	22,100
Grand Total, Presidency ..	11,925	81,446	93,371	70,769	22,602

Note for the Second Circle.—(*a*) Sold departmentally (*c*) Written off.
Note for the Sixth Circle.—(*a*) Used departmentally. (*f*) Revised figure adopted.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1928-29—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
BAMBOOS (IN NUMBER).					
First Circle.					
Ganjam	1,700	33,702	35,402	(*b*) 35,402	..
Vizagapatam	..	1,958	1,958	(*b*) 1,958	..
Godavari, Upper	6,950	21,830	28,780	(*b*) 27,830 (*a*) 700	250
Do. Lower	..	1,306	1,306	(*a*) 66 (*b*) 1,220	20
Nellore	..	86	86	(*b*) 86	..
Total ..	8,650	58,882	67,532	67,262	270
Second Circle.					
Anantapur	..	100	100	100	Nil.
Kurnool, East	5,760	40,901	46,661	45,791	870
Do. South	..	500	500	(*a*) 500	..
Do. West	..	..	..	..	..
Cuddapah, North	1,408	2,040	3,448	3,448	..
Do. South	..	350	350	350	..
Total ..	7,168	43,891	51,059	50,189	870
Fourth Circle.					
Chittoor	..	57	57	57	..
Salem, North	50	..	50	50	..
Do. South	..	342	342	342	..
Total ..	50	399	449	449	..
Fifth Circle.					
Coimbatore, North .. .	86	1,270	1,356	1,356	..

Note for the First Circle—(*a*) Sold departmentally.
(*b*) Used departmentally.
Note for the Second Circle.—(*a*) Used departmentally.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1928-29—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
BAMBOOS (IN NUMBER)—*cont.*					
Sixth Circle.					
Wynaad	(*c*) 70	21,969	22,039	11 (*a*) 21,588 (*b*) 70	370
Nilambur	6,170	106,849	113,019	99,693	13,326
Palghat	..	350	350	350	..
Total ..	6,240	129,168	135,408	121,712	13,696
Parlakimedi Maliahs ..	..	3,000	3,000	3,000	..
Grand Total, Presidency ..	22,194	236,610	258,804	243,968	14,836
MINOR FOREST PRODUCE (IN QUARTERS OF 28 LB.).					
First Circle.					
Ganjam	1,575	5,050	6,625	(*c*) 6,557 (*a*) 68	..
Vizagapatam	64	93	157	(*a*) 114	43
Godavari, Upper	992	5,800	6,792	(*c*) 5,047 (*b*) 168	1,577
Do. Lower	27	204	231	(*c*) 195	36
Guntur	41	248	289	(*c*) 289	..
Nellore	55	9,410	9,465	(*a*) 6,794	2,671
Total ..	2,754	20,805	23,559	19,232	4,327
Second Circle.					
Anantapur	2	29	31	4	27
Kurnool, East	5	1,335	1,340	1,282	58
Do. South	..	1,219	1,219	(*a*) 1,194	25
Do. West	..	529	529	529	..
Cuddapah, North	794	733	1,527	1,514	13
Do. South .. .	..	217	217	217	..
Total ..	801	4,062	4,863	4,740	123
Fourth Circle.					
Chittoor	38	(*b*) 40	78	78	..
Vellore	633	426	1,059	650	409
Salem, North	97	35	132	120	12
Do. Central	35	32	67	59	8
Do. South	20	20	40	32	8
Total .	823	553	1,376	989	437

Note for the Sixth Circle.—(*a*) Used departmentally.
(*b*) Written off.
(*c*) Revision in the previous return.
Note for the First Circle.—(*a*) Sold departmentally.
(*b*) Written off.
(*c*) Used departmentally.
Note for the Second Circle.—(*a*) Used departmentally.
Note for the Fourth Circle.—(*b*) Found excess.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1928-29—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
MINOR FOREST PRODUCE (IN QUARTERS OF 28 LB.)—*cont.*					
Fifth Circle.					
Coimbatore, North	..	3,782	3,782	3,782	..
Do. South	8	9	17	14	3
Total ..	8	3,791	3,799	3,796	3
Sixth Circle.					
Wynaad	(*c*) 3	..	3	..	3
The Nilgiris	(*b*) 83	281	364	43 (*a*) 109	212
Total ..	86	281	367	152	215
Parlakimedi Maliahs ..	89·89	7·83	97·72	89·92	7·80
Grand Total, Presidency ..	4,562	29,500	34,062	28,949	5,113

Note for the Sixth Circle.—(*a*) Used departmentally.
(*b*) Revised figure adopted.
(*c*) Omission in the previous return.

ANNUAL FORM No. 38.

Forest Department, Madras First Cirle District.

Statement showing the value of timber and other produce at sale depots for the year 1928-29.

District.	Description of timber or produce.	On hand at the commencement of the year.			On hand at the close of the year.			Difference in value.	
		Number.	Cubic feet.	Value.	Number.	Cubic feet.	Value.	In favour of the year.	Against the year.
	First Circle.			Rs.			Rs.	Rs.	Rs.
Vizagapatam	Timber ..	26	250	312	19 and 100 clds.	2,085	120	..	192
Do. ..	Minor forest produce.	..	..	..	qrs. 43	..	172	172	..
Nellore ..	Timber ..	..	42	7	..	427	80	73	..
	Fuel ..	..	380	10	..	10	1	..	9
	Minor forest produce.	..	qrs. 56	88	..	qrs. 2,664	2,692	2,604	..
	Total ..	..	..	417	..	..	3,085	2,648	..
	Second Circle. Bellary.								
Kurnool, South.	Timber ..	..	15,716	11,987	..	920	920	..	11,067
Cuddapah, South.	Timber ..	..	2,003	2,619	..	..	..	..	2,619
	Total ..	..	17,719	14,606	..	920	920	..	13,686
Kurnool, South.	Fuel ..	..	70	2	..	..	..	..	2
Cuddapah, South.	Fuel ..	..	153	3	..	..	..	..	3
	Total ..	..	223	5	..	..	..	..	5
Kurnool, South.	Sandalwood	..	112½	28	..	..	..	..	28
	Total ..	..	112½	28	..	..	..	..	28
	Grand Total.	..	..	14,639	..	..	920	..	13,719
	Fourth Circle.								
Chittoor ..	Timber ..	21	106	26	..	..	..	..	26
	Fuel ..	..	2,673	93	..	9,520	298	205	..
Vellore ..	Timber ..	..	200	6,685	..	1,412	41,332	34,647	..
	Minor forest produce.	..	..	..	..	qrs. 355	222	222	..
Salem, North.	Timber ..	..	1,045	13,081	..	769	9,617	..	3,464
	Fuel ..	..	..	..	..	320	16	16	..
	Bamboos ..	..	..	1	..	..	..	..	1
	Minor forest produce.	..	qrs. 97	570	..	12	71	..	499

Statement showing the value of timber and other produce at sale depots for the year 1928-29—*cont.*

District.	Description of timber or produce.	On hand at the commencement of the year.			On hand at the close of the year.			Difference in value.	
		Number.	Cubic feet.	Value.	Number.	Cubic feet.	Value.	In favour of the year.	Against the year.
				ABSTRACT.					
	Fourth Circle—cont.			Rs.			Rs.	Rs.	Rs.
Salem, Central.	Timber ..	..	20	314	..	..	..	..	314
	Fuel ..	..	3,477	380	..	5,627	264	..	116
	Minor forest produce.	..	qrs. 35	57		8	13	..	44
Salem, South.	Timber ..	..	(a) 404	1,742	..	435	1,616	..	126
	Fuel ..	..	18,766	281	..	11,050	180	..	101
	Minor forest produce.	..	qrs. 20	14	..	8	6	..	8
	Total ..	..	..	23,244	..	..	53,635	30,391	..
Abstract.	Timber ..	..	1,775	21,848	..	2,616	52,565	30,717	..
	Fuel ..	..	24,916	754	..	26,5.7	758	4	..
	Bamboos ..	..	..	1	..	..	..	..	1
	Minor forest produce.	..	qrs. 152	641	..	383	312	..	329
	Total ..	..	..	23,244	..	..	53,635	30,391	..
	Fifth Circle.								
Coimbatore, North.	Timber ..	..	2,010	34,697	..	938	26,036	..	8,661
	Bamboos ..	86	..	3	..	..	..	..	3
Madura ..	Timber ..	..	2,587 and 592 brake poles.	1,024	..	382 and 279 brake poles.	205	..	819
	Fuel ..	..	240	30	..	5,820	727	697	..
Tinnevelly	Timber ..	..	901	1,417	..	1,965	2,431	310	..
		..	(b) 19	674					
	Fuel ..	..	1,175	226	..	11,565	2,891	2,665	..
				ABSTRACT.					
	Timber ..	..	5,517 and 592 brake poles.	37,812	..	(c) 3,285 and 279 brake poles.	28,672	..	9,140
	Fuel ..	..	1,415	256	..	17,385	2,618	2,362	..
	Bamboos ..	86	..	3	..	..	..	..	3
				38,071		..	32,290		5,781

N.B.—Timber includes sandalwood.

(*a*) Includes sandalwood 22 c.ft. worth Rs. 1,026 omitted in the previous years return.

(*b*) Added as per revised figures furnished by the District Forest officer, Tinnevelly.

(*c*) Excludes 12,055 c.ft. of timber, etc., worth Rs. 27,450, of the utilization division at Valparai sleeper depot.

Statement showing the value of timber and other produce at sale depots for the year 1928-29—*cont.*

District.	Description of timber or produce.	On hand at the commencement of the year.			On hand at the close of the year.			Difference in value.	
		Number.	Cubic feet.	Value.	Number	Cubic feet.	Value.	In favour of the year.	Against the year.
	Sixth Circle.			Rs.			Rs.	Rs.	Rs.
Mangalore, North.	Timber ..	..	35,087	18,065	..	38,784	25,508	7,443	..
Mangalore, South.	Timber ..	..	2,870	3,081	..	6,423	7,463	4,445	..
Wynaad ..	Timber .	..	4,130	10,860	..	(*a*) 5,365	16,050	5,190	..
	Total .	..	41,587	31,943	..	50,572	49,021	17,078	..
Utilization division. Kasargode Depot. South Mangalore division.	Timber ..	..	16,833	30,722	..	37,046	65,000	34,278	..
Nanjangode Depot. Wynaad division.	Timber ..	..	2,809	6,985	..	33,108	80,500	73,515	..
Beypore Depot. Nilambur division.	Timber ..	..	52,560	1,21,300	..	55,870	1,20,050	..	1,250
	Total ..	..	72,202	1,59,007	..	126,024	2,65,550	1,06,543	..
Parlakimedi Maliahs.	Timber ..	119	710	1,052	192	185	1,148	96	..
	Fuel .	106	11,600	348	173	22,100	884	536	..
	Minor produce .	..	qrs. 111	225	..	8	21	..	7
Total, Presidency.	Sandalwood.	..	112½	28	..	..	..	..	28
	Timber ..	..	140,394	2,66,587	..	186,973	3,98,076	1,31,489	..
	Fuel	..	38,534	1,373	..	66,052	5,261	3,888	..
	Bamboos ..	86	..	4	..	..	..	..	4
	Minor produce ..	..	qrs. 319	954	..	qrs. 3,098	3,197	2,440	..
Grand Total, Presidency.	..	..	..	2,70,571	..	..	4,08,587	1,38,410	

(*a*) Includes 2,321 c.ft. with Messrs. Pierce Leslie & Co.

ANNUAL FORM NO. 39 (FULL SHEET).

Forest department, Madras Presidency.

Summary of revenue of the different districts, 1928–29.

Budget heads.	Direction.	Ganjam.	Vizagapatam.	Godavari Upper.	Godavari Lower.	Guntur.	Nellore.	Total.
First Circle.								
III. Forest receipts—								
(a) Timber and other produce removed from forests by Government Agency—	Rs.	Rs.	Rs	Rs.	Rs.	Rs.	Rs.	Rs.
(1) Sandalwood—								
(2) Other produce—								
i. Timber	..	79,723	7,369	1,02,589	2,241	..	8	1,91,930
ii. Firewood and charcoal.	(a) 54	1,012	23	485	7	1,235	55	2,871
iii. Bamboos	..	85	..	..	10	..	..	95
iv. Other minor produce..	(b) 5,375	42	..	..	7	..	2,737	8,161
Total, (a) ..	5,429	80,862	7,392	1,03,074	2,265	1,235	2,800	2,03,057
(b) Timber and other produce removed from the forests by consumers or purchasers—								
(1) Forest Department—								
i Timber	..	17,858	300	4,409	18,108	750	8	41,433
ii. Firewood and charcoal.	(c)29,314	35,368	7,550	729	71,680	36,313	30,713	2,11,667
iii. Bamboos ..	..	7,061	19,446	30,816	63,050	7,628	65	1,28,076
iv. Grazing and fodder grass.	..	9,353	3,228	7,208	20,371	51,590	23,536	1,15,286
v. Other minor produce.	(d)1,930	2,279	7,156	3,287	23,057	8,182	7,325	53,216
Total, (1) ..	31,244	71,919	37,680	46,449	1,96,276	1,04,463	61,647	5,49,678
(2) Revenue Department—								
i Timber	..	8,373	1,818	..	10,752	1,306	4,240	26,489
ii. Firewood and charcoal.	..	6,964	1,990	..	1,586	13,932	5,969	30,441
iii. Bamboos	..	233	3	..	..	..	..	236
v. Other minor produce.	..	7,167	2,557	..	29,196	18,478	5,360	62,758
Total, (2) ..	..	22,737	6,368	..	41,534	33,716	15,569	1,19,924
Total, (b) ..	31,244	94,656	44,048	46,449	2,37,810	1,38,179	77,216	6,69,602
(c) Drift and waifwood and confiscated forest produce.	..	512	48	870	3,464	174	106	5,174
(d) Profits from Government commercial undertakings.	..	44,929	..	..	..	..	..	44,929
(e) Miscellaneous—								
(1) Fines and forfeitures..	(b)41	657	657	172	2,001	177	1,138	4,873
(2) Rents of buildings ..	..	2,155	462	1,473	1,519	332	1,046	6,987
(3) Other sources	(e)287	7,910	4,577	1,430	10,909	14,477	18,926	58,516
Total, (e) ..	328	10,722	5,726	3,075	14,429	14,986	21,110	70,376

(a) Rupees 11 relates to Nellore district.
(b) Rupees 60 relates to Parlakimidi Maliahs and Rs. 5,315 to Nellore.
(c) Relates to Nellore district.
(d) Rupees 1,786 relates to Nellore district.
(e) Rupees 237 relates to Nellore district.

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Ganjam.	Vizagapatam.	Godavari Upper.	Godavari Lower.	Guntur.	Nellore.	Total.
First Circle—cont.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest receipts—*cont.*								
(*f*) Recoveries of investments on Government commercial undertakings.	..	1,41,985	..	..	..	..	..	1,41,985
Total (*f*) ..	..	1,41,985	..	..	..	..	..	..
(*g*) Recoveries of indirect charges from Government commercial undertakings.	..	450	..	..	..	..	..	450
Total ..	37,001	3,74,116	57,214	1,53,468	2,57,968	1,54,574	1,01,232	11,35,573
(*h*) Deduct—Refunds—Voted— Refunds by Forest officers.	..	722	1,008	55	354	332	32	2,503
Grand Total ..	37,001	3,73,394	56,206	1,53,413	2,57,614	1,54,242	1,01,200	11,33,070

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Ananta-pur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
Second Circle.		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest receipts—								
(*a*) Timber and other produce removed from forests by Government Agency—								
Sandalwood	..	122	..	..	..	..	..	122
Other produce—								
Timber	..	20	7,184	24,392	9,939	512	2,318	44,365
Firewood and charcoal	..	15	193	324	8,023	148	96	8,799
Bamboos	..	..	729	..	..	..	..	729
Other minor produce	..	..	431	..	11	..	3	445
Total, (*a*) ..	..	157	8,537	24,716	17,973	660	2,417	54,460
(*b*) Timber and other produce removed from the forests by consumers or purchasers—								
Forest Department—								
Timber	..	4,203	1,420	21,601	14,177	16,046	33,962	91,409
Firewood and charcoal	..	3,548	625	9,233	2,210	9,645	32,415	57,676
Bamboos	..	170	3,305	29,466	17,236	5,302	7,150	62,629
Grazing and fodder grass	..	32,834	29,238	18,732	36,015	30,499	18,785	1,66,103
Other minor produce	..	7,977	4,790	4,490	27,809	4,624	6,231	55,921
Total, Forest Department ..	..	48,732	39,378	83,522	97,447	66,116	98,543	4,33,738
Revenue Department—								
Timber	..	30,872	553	1,627	5,918	1,440	697	41,107
Firewood and charcoal	..	7,798	344	1,404	3,490	2,237	787	16,060
Bamboos	..	..	..	..	..	..	..	..
Other minor produce	..	2,63,718	5,895	3,629	32,790	3,699	6,499	3,16,230
Total, Revenue Department ..	..	3,02,388	6,792	6,660	42,198	7,376	7,983	3,73,397
(*c*) Drift and waifwood and confiscated forest produce ..	..	217	113	445	718	378	300	2,171

Summary of revenue of the different districts, 1928–29—*cont.*

Budget heads.	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
Second Circle—cont.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest receipts—*cont.*								
(*e*) Miscellaneous—								
Fines and forfeitures	6	336	148	1,137	220	951	520	3,818
Rents of buildings	..	450	1,124	2,244	2,131	1,146	1,209	8,304
Other sources	1,337	20,942	6,615	9,807	18,601	7,886	6,329	71,517
Total (*e*) ..	1,343	21,728	7,887	13,188	20,952	9,983	8,058	83,639
Total ..	1,343	3,73,222	62,707	1,28,531	1,79,288	84,513	1,17,301	9,46,905
(*h*) Deduct—Refunds—Voted—								
Refunds by Forest officers	..	708	378	511	348	257	165	2,367
Grand total ..	1,343	3,72,514	62,329	1,28,020	1,78,940	84,256	1,17,136	9,44,538

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Research.	Wynaad Working Plans Office.	North Coimbatore Working Plans Office.	Ganjam Working Plans Office.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
III. *Working Plans Circle.*						
L. Timber and other produce removed from the forests by Government agency—						
(*a*) Timber	244	..	..	..	..	244
V. Miscellaneous—						
(1) Fines and forfeitures ..	..	..	..	..	..	..
(2) Rents of buildings ..	393	110	177	4	1	685
(3) Other sources	..	39	..	..	..	39
Total, Receipts	393	393	177	4	1	968

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
Fourth Circle.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest receipts—							
(*a*) Timber and other produce removed from forests by Government agency—							
(1) Sandalwood	* 2,048	1,598	1,82,040	2,51,998	28,078	18,718	4,84,480
(2) Other produce—							
(i) Timber	..	4,245	46	159	27	546	5,023
(ii) Firewood and charcoal ..	..	120	261	30	114	370	895
(iii) Bamboos ..	..	..	..	17	..	..	17
(iv) Other minor produce	..	..	457	35	..	..	492
Total, (2) ..	..	4,365	764	241	141	916	6,427
Total, (*a*) ..	2,048	5,963	1,82,804	2,52,239	28,219	19,634	4,90,907
(*b*) Timber and other produce removed from forests by consumers or purchasers—							
(1) Forest Department—							
(i) Timber	..	165	265	51	1,709	..	2,190
(ii) Firewood and charcoal ..	..	5,719	26,585	2,395	22,307	2,338	59,344
(iii) Bamboos ..	..	14,353	97,398	3,808	20,035	5,410	1,41,004
(iv) Grazing and fodder grass ..	..	24,643	51,818	34,955	69,694	24,350	2,05,460
(v) Other minor produce ..	..	9,756	25,995	12,176	9,629	20,286	77,842
Total, Forest Department ..	..	54,636	2,02,061	53,385	1,23,374	52,384	4,85,840
(2) Revenue Department—							
(i) Timber	..	6,764	26,441	10,598	18,495	23,281	85,579
(ii) Firewood and charcoal ..	..	2,480	15,872	1,341	6,625	5,957	32,275
(iii) Bamboos ..	..	..	6	..	..	..	6
(iv) Other minor produce	..	11,858	33,338	12,573	16,571	17,560	91,910
Total, Revenue Department ..	..	21,112	75,657	24,512	41,691	46,798	2,09,770
Total, (*b*) ..	..	75,748	2,77,718	77,897	1,65,065	99,182	6,95,610
(*c*) Drift and waifwood and confiscated forest produce ..	..	96	290	75	224	149	834
(*d*) Miscellaneous—							
(1) Fines and forfeitures..	..	282	2,529	715	1,167	231	4,924
(2) Forest College ..	..	..	..	..	..	..	..
(3) Rents of buildings ..	..	1,094	1,996	906	1,424	324	5,744
(4) Other sources	23	7,464	32,405	6,906	25,749	21,051	93,598
Total, (*d*) ..	23	8,840	36,930	8,527	28,340	21,606	1,04,266
Total ..	2,071	90,647	4,97,742	3,38,738	2,21,848	1,40,571	12,91,617

* Sandalwood revenue relating to other circles—

	Rs.
Tinnevelly	1,155
South Cuddapah ..	848
South Kurnool ..	45
Total ..	2,048

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
Fourth Circle—cont.	RS.	RS.	RS.	RS	RS.	RS.	RS.
VIII. Forest receipts—*cont.*							
(*h*) *Deduct*—Refunds—Voted—Refunds by forest officers	..	481	9,485	369	1,776	555	12,666
Grand total ..	2,071	90,166	4,88,257	3,38,369	2,20,072	1,40,016	12,78,951

Summary of revenue of the different districts, 1928–29—*cont.*

Budget heads.	Direction.	Kollega.	Coimbatore, North.	Coimbatore, South.	Madura.	Tinnevelly.	Tanjore.	Circle Total.
Fifth Circle.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest receipts—*cont.*								
(*a*) Timber, etc., removed by Government agency—								
(i) Sandalwood	1,09,300	..	2,52,213	..	..	..	..	*3,61,513
Other produce—								
(i) Timber	..	2	2,806	9,395	4,587	7,075	..	23,865
(ii) Firewood, etc.	..	..	797	8,254	2,401	8,312	30	19,794
(iii) Bamboos	..	..	..	16	1	..	..	17
(iii) Other minor produce	..	..	2	37	..	..	..	39
(*b*) Timber and other produce removed from the forests by consumers or purchasers—								
Forest Department—								
(i) Timber	..	1,919	453	1,596	1,256	..	1,095	6,319
(ii) Firewood, etc.	..	3,796	21,346	11,373	72,436	63,939	395	1,73,285
(iii) Bamboos	..	7,050	22,254	5,123	3,290	849	..	39,266
(iv) Grazing, etc.	..	49,778	43,004	6,161	28,508	8,740	342	1,35,533
(v) Other minor produce	..	5,759	27,850	7,669	26,687	13,383	1,711	83,059
Revenue Department—								
(i) Timber	..	1,706	2,162	1,726	14,929	447	30	21,010
(ii) Firewood, etc.	..	453	2,721	1,248	8,802	22,359	2,533	38,116
(iii) Bamboos	..	..	506	..	5	..	9	520
(iv) Other minor produce	..	1,126	3,737	2,733	25,129	17,071	2,887	52,683
(*c*) Drift and waifwood, etc.	..	70	95	56	766	299	2	1,288
(*d*) Profits from Government commercial undertakings ..	..	..	..	..	..	..	..	..
(*e*) Miscellaneous—								
(1) Fines and forfeitures	..	51	903	163	1,241	540	4	2,902
(2) Rents of buildings	..	939	1,160	9,486	2,138	1,479	3	15,205
(3) Other sources	38	8,746	15,360	11,470	20,687	10,881	4,496	71,678
(*f*) Recoveries of investments in Government commercial undertakings.	..	..	..	2,048	..	..	..	2,048
(*g*) Recoveries of indirect charges from Government commercial undertakings	..	..	..	47,263	..	..	..	47,263
Total ..	1,09,338	81,395	3,97,369	1,25,500	2,12,863	1,55,374	13,537	10,95,403
(*h*) *Deduct*—Refunds—Voted—Refund by forest officers ..	2	300	2,922	27	3,886	428	1,505	9,070
Grand Total ..	1,09,336	81,095	3,94,447	1,25,473	2,08,977	1,54,946	12,032	10,86,333

	Rs.
*North Coimbatore ..	2,37,120
Kollegal	1,23,067
Nilgiris	1,326
	3,61,513

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
		Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Sixth Circle.								
VIII. Forest receipts—*cont.*								
(*a*) Timber and other produce removed from forests by Government agency—								
Sandalwood	..	1,772	3,492	..	(*a*) 8,314	..	..	13,578
Other produce—								
Timber	..	41,364	19,108	(*b*) 1,37,273	18,721	10,162	38,803	2,65,421
Firewood and charcoal	..	287	..	..	48,321	194	..	48,802
Bamboos	..	..	..	..	..	..	8	8
Other minor produce	..	..	..	30	764	..	8	802
Total ..	..	41,641	19,108	1,37,303	67,806	10,356	38,819	3,15,033
Total (*a*) ..	..	43,413	22,600	1,37,303	76,120	10,356	38,819	3,28,611
(*b*) Timber and other produce removed from the forests by consumers or purchasers.								
Forest Department—								
Timber	..	142	17,794	921	1,030	72	..	19,959
Firewood and charcoal	..	15,315	1,479	2	4,417	46,796	8	67,018
Bamboos	..	21	352	1,855	685	23,178	16	26,107
Grazing and fodder grass	..	5,469	9,863	4,496	6,201	5,713	..	31,742
Other minor produce	..	9,570	5,514	6,576	2,998	3,094	2,950	30,702
Total, Forest Department ..	..	29,517	35,002	13,850	15,333	78,852	2,974	1,75,528
Revenue Department—								
Timber	..	8,298	6,036	3,102	266	2,250	40	19,992
Firewood and charcoal	..	2,229	896	1	2,377	2,015	..	13,518
Bamboos	..	52	19	..	13	..	..	32
Other minor produce	..	1,201	5,197	305	320	3,995	..	11,018
Total, Revenue Department ..	..	17,728	12,148	3,408	2,976	8,260	40	44,560
Total (*b*) ..	..	47,245	47,150	17,258	18,309	87,112	3,014	2,20,088

Summary of revenue of the different districts, 1928-29—*cont.*

Budget heads.	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
Sixth Circle—cont.	Rs	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest receipts—*cont.*								
(*c*) Drift and waifwood and confiscated forest produce ..	..	853	528	13	15	39	..	1,448
(*d*) Profits from Government commercial undertakings ..	..	..	..	..	..	..	2,17,670	2,17,670
Total (*d*) ..	..	..	..	..	..	..	2,17,670	2,17,670
(*e*) Miscellaneous—								
Fines and forfeitures	..	13	58	6	360	148	5	590
Forest College	..	..	..	..	..	..	..	..
Rents of buildings	(*c*) 18	2,002	1,217	3,234	2,310	580	10,188	19,550
Other sources	(*d*) 661	7,265	9,568	22,684	16,782	6,970	6,641	70,571
Total (*e*) ..	679	9,281	10,843	25,924	19,452	7,698	16,834	90,711
(*f*) Recoveries of investments in Government commercial undertakings.	..	..	..	..	..	..	1,718	1,718
Total (*f*) ..	..	..	..	..	..	..	1,718	1,718
(*g*) Recoveries of indirect charges from Government commercial undertakings.	..	..	..	..	..	..	1,06,228	1,06,228
Total (*g*) ..	..	..	..	..	..	..	1,06,228	1,06,228
Total ..	679	1,00,792	81,121	1,80,498	1,13,896	1,05,205	3,84,283	9,66,474
(*h*) *Deduct*—Refunds—Voted—								
Refunds by forest officers	..	137	930	131	41	40	..	1,279
Grand Total ..	679	1,00,655	80,191	1,80,367	1,13,855	1,05,165	3,84,283	(*e*) 9,65,195

* Include Rs. 228 relating Forest College.
(*a*) Excludes Rs. 1,326 relating to the Nilgiris credited in Fifth Circle.
(*b*) Includes Rs. 933 erroneously credited in March finals to (*b*) Forest Department Timber removed by consumers or purchasers.
(*c*) Relates to Madura division.
(*d*) Refund of a portion of passage pay drawn for Mr. Richard in 1925.

(*e*) Excludes amounts credited in the Forest Utilization Officer's divisions as under:—

		Rs.
South Mangalore—Kasaragod Depot.		68,360
Wynaad—Naujangod Depot.		1,58,306
Ivory sales ..	North Mangalore	2
	The Nilgiris	16
	Palghat	735

Summary of revenue and expenditure of the different districts in the Engineering branch, 1928-29.

Budget heads.	Forest Engineer, Madras.	Forest Utilization Officer.	Logging Engineer.	Forest Engineer, i.e., Saw mills and Extraction division.	Forest Economist.	Chief Forest Engineer.	Chenat Nair Exploitation division.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest receipts—*cont.*								
(*a*) Timber and other produce removed from the forest by Government agency—								
Timber	1,299	2,92,900	..	1,015	4,127	..	..	2,99,341
Other minor produce	..	2,026	..	..	..	..	..	2,026
(*b*) Timber and other produce removed from the forest by consumers or purchasers—								
Forest Department—Timber—	..	6	..	..	..	..	..	6
Other minor produce	..	3,839	..	..	..	..	..	3,839
(*c*) Miscellaneous—								
Fines and forfeitures	..	100	..	2	..	..	..	102
Forest College	..	..	..	..	..	..	..	..
Rents of buildings	15	65	219	..	..	..	2,164	2,463
Other sources	1,181	160	177	19,599	..	91	..	21,208
(*g*) Recoveries of indirect charges from Government commercial undertakings.	..	..	..	..	..	..	29,906	29,906
Total ..	2,495	2,99,096	421	20,616	4,127	91	32,070	3,58,891
(*h*) Deduct—Refunds — Voted	..	65	65	..	..	..	..	65
Net Total ..	2,495	2,99,031	396	20,616	4,127	91	32,070	3,58,826

Summary of expenditure of the different districts for the year 1928-29.

Budget heads.	Direction.	Ganjam.	Vizagapatam.	Godavari, Upper.	Godavari, Lower.	Guntur.	Nellore.	Total.
FIRST CIRCLE.								
8. *b. Conservancy and Works.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
I. Forest produce removed by Government agency—Voted—								
Timber	..	22,539	1,503	13,220	..	..	57	37,319
Firewood and charcoal	..	2,105	..	323	..	54	..	2,482
Grass and other minor produce ..	..	..	..	..	26	..	4,835	4,861
Total ..	..	24,644	1,503	13,543	26	54	4,892	44,662
II. Forest produce removed by private agency—Voted ..	..	5,089	2,354	3,387	12,295	10,009	5,653	38,787
III. Maintenance, repairs and renewals—								
Feed and keep of cattle ..	..	427	..	731	..	..	27	1,185
Renewals or replacements of stores, tools and plant ..	..	92	42	1,111	2,206	469	1,774	5,694
Total ..	..	5,608	2,396	5,229	14,501	10,478	7,454	45,666
IV. Communications and buildings—								
Roads and bridges	..	1,954	494	617	1,251	1,126	1,620	7,062
Buildings	..	6,708	1,188	2,151	2,212	1,112	3,958	17,309
Other works	..	94	6	47	..	56	..	203
Total ..	..	8,756	1,688	2,795	3,463	2,294	5,578	24,574
V. Conservancy and regeneration—								
Maintenance of boundaries ..	..	..	50	5	542	..	2	599
Forest surveys	..	..	..	..	16	..	..	16
Regeneration	248	..	29	982	2,015	259	85	3,618
Fire protection	..	6,767	254	3,949	2,341	144	520	13,975
Other works	..	2,483	21	..	693	500	320	4,017
Total ..	248	9,250	354	4,936	5,607	903	927	22,225
VI. Miscellaneous—								
Rates and taxes	..	24	..	..	16	..	6	46
Law charges	..	..	..	1	..	..	2	3
Drift and waifwood	..	77	..	37	16	3	..	133
Rent of leased forests .	..	..	500	..	..	..	..	500
Miscellaneous	..	..	..	..	6	..	..	6
Honoraria—Voted	..	35	..	..	..	..	..	35
Total ..	..	136	500	38	38	38	8	723
VII. Suspense—Works Advances—Voted	..	..	30	51	..	..	..	81
Total of (*b*) Conservancy and works ..	248	48,394	6,411	26,490	23,635	13,732	18,859	1,37,769
Non-voted ..	..	24	..	..	16	..	6	46
Net voted ..	248	48,370	6,411	26,490	23,619	13,732	18,853	1,37,723
8. *c. Establishments.*								
Pay of Officers—Non-voted	25,648	15,235	..	..	8,992	5,145	..	55,021
Cost of passage granted under the Superior Civil Service Rules, 1924	1,976	..	..	..	..	..	..	1,976

Summary of expenditure of the different districts for the year 1928-29 —*cont.*

Budget heads.	Direction.	Ganjam.	Vizagapatam.	Godavari, Upper.	Godavari, Lower.	Guntur.	Nellore.	Total.
FIRST CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.								
Pay of Officers—Voted	2,328	16,878	8,986	8,601	4,609	5,606	7,749	54,760
Pay of Establishments—								
Permanent—Voted	9,738	65,953	20,151	46,816	40,674	38,463	38,682	2,60,477
Temporary—Voted	..	5,259	837	3,057	1,355	480	..	11,038
Allowances—Non-voted—								
Travelling allowance	3,161	4,619	100	..	1,853	1,062	630	11,425
Allowances—Voted—								
Travelling allowance	1,575	16,723	4,785	9,460	7,253	5,504	7,428	52,728
Fixed Travelling allowance ..	..	2,957	1,189	2,515	2,047	1,804	1,473	11,985
Other Compensatory	..	1,491	300	706	923	480	660	4,560
Contract Contingencies—Voted ..	1,570	4,043	1,428	2,059	2,767	1,988	2,051	15,906
Non-contract Contingencies—Non-voted—								
Rates and taxes	1,186	66	29	..	441	140	36	1,898
Non-contract Contingencies—Voted—								
Rents	852	1,619	693	58	2,064	2,049	1,656	8,991
Miscellaneous	14	88	151	..	29	24	19	325
Charges payable to Governments, departments and others	..	—880	..	..	..	880	..	..
Supplies and Services—General—								
Apparatus and materials	8	561	124	150	..	105	41	989
Miscellaneous	79	..	..	..	..	..	27	106
Total ..	18,135	1,34,615	38,823	73,425	73,007	63,728	60,452	4,92,185
Non-voted ..	31,970	19,923	129	..	11,286	6,344	666	70,318
Voted ..	16,165	1,14,692	38,694	73,425	61,721	57,384	59,786	4,21,867
52 A—*b. Conservancy and Works.*								
I. Livestock, stores and tools and plant—Voted—								
Purchase of livestock	4,005	..	..	229	..	..	..	4,234
Purchase of stores and tools and plant	215	66	..	305	904	50	8,918	10,458
II. Communications and buildings—								
Roads and bridges—								
Works in progress	..	216	—206	527	225	..	..	762
New works	..	1,183	—594	390	..	59	170	1,208
Buildings—								
Works in progress	..	1,618	120	4,264	2,667	..	17	8,686
New works	..	53	1,317	1,879	1,038	1,019	63	5,369
Other works—								
New works	..	302	..	554	299	..	..	1,155
III. Demarcation, improvements and extension of forests—								
Demarcation	..	792	..	995	1,740	..	44	3,571
Surveys—Local	4,350	..	..	..	..	..	..	4,350
Total ..	8,570	4,230	637	9,143	6,873	1,128	9,212	39,793
52 A—*d.* Investments on Government commercial undertakings.	..	68	..	..	..	..	..	68
52 A. Capital outlay on forests—Total.	8,570	4,298	637	9,143	6,873	1,128	9,212	39,861

Summary of expenditure of the different districts for the year 1928–29.

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
SECOND CIRCLE.								
8. *b. Conservancy and Works.*								
I. Forest produce removed by Government agency—Voted—								
Timber	..	..	2,168	2,095	1,544	100	310	6,215
Other produce—								
1. Firewood and charcoal	..	..	8	226	2,734	28	55	3,051
2. Bamboos	..	..	472	..	..	..	..	472
3. Sandalwood .. .. .. , ..	..	1	..	2	..	..	59	62
4. Grass and other minor produce	..	..	240	..	..	13	..	253
Total ..	..	1	2,888	2,321	4,278	141	424	10,053
II. Forest produce removed by private agency—Voted.	8	9,078	4,746	5,178	6,756	9,477	10,862	46,100
III. Maintenance, repairs and renewals—								
Feed and keep of cattle	..	20	..	7	1,617	..	..	1,644
Renewals or replacement of stores, tools and plant.	2	112	83	167	108	160	195	827
Total ..	2	132	83	174	1,725	160	195	2,471
Communications and Buildings—								
Roads and bridges	..	1,060	2,036	1,547	1,086	697	1,499	7,925
Buildings	13	2,101	1,910	2,028	1,435	1,941	2,606	12,034
Other works	..	123	239	74	114	4	13	567
Total ..	13	3,284	4,185	3,649	2,635	2,642	4,118	20,526
IV. Conservancy and regeneration—								
1. Maintenance of boundaries	..	..	272	292	244	75	..	883
2. Forest—Surveys	..	..	600	..	..	..	..	600
3. Regeneration	..	167	324	521	333	56	118	1,519

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs
SECOND CIRCLE—*cont.*								
8. *b. Conservancy and Works*—cont.								
IV. Conservancy and Regeneration—*cont.*								
4. Protection from fire	..	120	669	457	947	858	1,007	4,058
5. Other works	..	702	491	58	..	347	563	2,161
Total ..	..	989	2,356	1,328	1,524	1,336	1,688	9,221
V. Miscellaneous—								
Honoraria—Voted	..	35	5	..	..	43	95	178
Non-contract Contingencies—Voted—Miscellaneous—Law charges.	..	..	..	..	..	9	..	9
Drift and waifwood and confiscated produce.	..	11	1	8	52	16	30	119
Supplies and Services—General	..	44	124	..	46	50	..	264
Total ..	..	90	130	8	99	118	125	570
VI. Suspense—Works Advances—Voted	..	..	34	..	— 9	..	..	25
Grand Total ..	23	13,569	14,422	12,658	17,008	13,874	17,412	88,966
8. *c. Establishments.*								
Pay of Officers—Non-voted—								
Pay of officers—Non-voted	26,636	..	7,100	12,001	11,671	3,900	7,216	68,524
Pay of Officers—Voted	..	7,200	1,290	..	800	5,118	400	14,808
Pay of Establishments—Voted—								
1. Permanent	11,626	35,254	32,656	38,958	42,127	39,985	42,149	2,42 755
2. Temporary	..	299	1,202	735	1,380	867	408	4,891
Total ..	11,626	35,553	33,858	39,693	43,507	40,852	42,557	2,47,646

Summary of expenditure of the different districts for the year 1928-29—cont.

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
SECOND CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.								
Allowances—Non-voted—								
Travelling allowance	2,963	..	2,157	2,196	2,246	1,127	1,281	11,970
Allowances—Voted—								
1. Travelling allowance	1,273	7,650	4,813	4,990	4,465	7,036	4,526	35,253
2. Fixed travelling allowance	..	1,351	1,834	1,936	1,257	1,889	2,588	10,855
3. Other compensatory	..	704	703	559	856	649	828	4,299
Total ..	1,273	9,705	7,350	7,485	7,078	9,574	7,942	50,407
Contract Contingencies—Voted	2,131	2,558	2,465	2,565	2,201	2,399	2,154	16,473
Non-contract Contingencies—Non-voted—								
Rates and taxes	..	120	37	215	392	233	36	1,033
Non-contract Contingencies—Voted—								
1. Rents	3,384	1,463	420	695	1,156	822	1,630	9,570
2. Books and periodicals	2	..	5	6	8	3	2	26
3. Miscellaneous	64	13	124	66	162	3	20	452
Total ..	3,450	1,476	549	767	1,326	828	1,652	10,048
Supplies and Services—General—								
1. Apparatus and materials	10	..	161	170	371	175	153	1,040
2. Miscellaneous	..	..	..	— 2	..	..	..	—2
Total ..	10	..	161	168	371	175	153	1 038
Grand Total ..	48,089	56,612	54,967	65,090	69,592	64,206	63,391	4,21,947
Non-voted ..	29,599	120	9,294	14,412	14,309	5,260	8,533	81,527
Voted ..	18,490	56,492	45,673	50,678	55,283	58,946	54,858	3,40,420

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
SECOND CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
52-A—*b. Conservancy and Works.*								
V. Live-stock, stores and tools and plant—Voted—								
Purchase of stores and tools and plant	..	..	194	74	.	50	72	390
VI. Works—Voted—								
Roads and bridges—								
New works	..	..	137	..	416	..	..	553
Buildings—								
Works in progress	..	..	..	..	..	..	344	344
New works	..	..	579	737	468	736	910	3,430
Other works—								
Works in progress	..	..	..	765	106	..	..	871
New works	..	..	51	..	252	257	..	560
Total ..	..	..	767	1,502	1,242	993	1,254	5,758
VII. Organization, improvement and extension of forests—Voted—								
Other works	..	..	..	..	81	..	..	81
Grand Total ..	..	..	961	1,576	1,323	1,043	1,326	6,229

Summary of expenditure of the different districts for the year 1928-29—*cont.*

III (Working Plans) Circle.

8-*b*. *Conservancy and Works.*

	Research. Rs.	Total. Rs.
ix. Suspense—Works Advances—Voted ...	5	5
Total ...	5	5

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation.)	Direction.	Research.	Working Plans Office.							Total.
			Wynaad.	Mount Stuart.	Ganjam.	Mangalore.	North Coimbatore.	Nilambur.	Kurnool West. Assistant.	
III (Working Plans) Circle—*cont.*		Rs.								Rs.
8-*c. Establishments.*										
Pay of officers—Non-voted—										
Pay excluding passage pay	..	15,202	..	..	..	..	..	..	..	15,202
Pay of establishments—Voted—										
Permanent	..	5,020	..	..	..	..	..	..	..	5,020
Allowances—Non-voted—										
Travelling allowance	..	3,997	..	..	..	..	..	..	..	3,997
Allowances—Voted—										
1. Travelling allowance	..	2,181	..	..	..	..	..	..	..	2,181
2. Other compensatory	..	544	..	..	..	..	..	..	..	544
Total ..	..	2,725	..	..	..	..	..	..	..	2,725
Contract contingencies—Voted ..	..	587	..	..	..	..	..	..	..	587
Non-contract contingencies—Voted—										
Miscellaneous	..	49	..	..	..	..	..	..	..	49
Total ..	..	636	..	..	..	..	..	..	..	636
Supplies and Services—General—										
1. Apparatus and materials ..	..	4	..	..	..	..	..	..	..	4
2. Miscellaneous	..	4,025	..	..	..	..	..	..	..	4,025
Total ..	..	4,029	..	..	..	..	..	..	..	4,029
Non-voted ..	..	19,199	..	..	..	..	..	..	..	19,199
Voted ..	..	12,410	..	..	..	..	..	..	..	12,410
Grand Total ..	..	31,609	..	..	..	..	..	..	..	31,609

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation.)	Direction.	Research.	Working Plans Office.							Total.
			Wynaad.	Mount Stuart.	Ganjam.	Mangalore.	North Coimbatore.	Nilambur.	Assistant. Kurnool West.	
III (Working Plans) Circle—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
52-*A. b. Conservancy and Works.*										
III. Maintenance, repairs and renewals —Voted—										
(*b*) Renewals or replacement of stores and tools and plant ..	119	16	..	6	..	..	..	..	..	141
IV. Conservancy and Regeneration—										
(*c*) Regeneration (Working plans)	49	..	27	26	261	74	262	..	2	701
Total ..	168	16	27	32	261	74	262	..	2	842
c. ii. Regeneration.										
52.-*A. c. Establishments.*										
Pay of officers—Non-voted—										
1. Pay excluding passage pay	25,352	..	5,005	8,010	7,807	8,543	7,163	644	..	62,524
2. Cost of passage granted under the Superior Civil Services Rules, 1924.	2,711	..	..	..	..	..	..	2,913	..	5,624
Total ..	28,063	..	5,005	8,010	7,807	8,543	7,163	3,557	..	68,148
Pay of officers—Voted	9,198	..	..	..	..	..	..	..	795	9,993
Pay of establishments—Voted—										
1. Permanent	5,119	..	1,448	3,130	3,672	869	3,131	172	21	17,562
2. Temporary	..	..	57	85	129	21	86	..	9	387
Total ..	14,317	..	1,505	3,215	3,801	890	3,217	172	825	27,942
Allowances—Non-voted—										
Travelling allowance	5,121	..	1,135	1,936	2,190	2,516	2,641	184	..	15,723
Allowances—Voted—										
1. Travelling allowance	4,217	..	1,157	1,159	1,297	788	1,988	49	267	10,922
2. Fixed travelling allowance	..	..	..	..	..	..	164	..	..	164
3. Other compensatory	910	..	92	30	163	42	85	15	..	1,337
Total ..	5,127	..	1,249	1,189	1,460	830	2,237	64	267	12,423

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Research.	Working Plans Office.							Total.
			Wynaad.	Mount stuart.	Ganjam.	Mangalore.	North Coimbatore.	Nilambur.	Assistant. Kurnool West.	
III (Working Plans) Circle—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
52. A. *c. Establishments*—cont.										
Contract contingencies—Voted	1,415	..	104	164	298	112	390	2	9	2,494
Non-contract contingencies—Voted—										
1. Rents	832	..	..	..	..	..	..	..	..	832
2. Books and periodicals	17	16	..	..	..	..	..	..	..	33
3. Miscellaneous	7	..	..	6	..	.	49	..		62
Total ..	856	16	..	6	..	..	49	..	..	927
Supplies and Services—General—										
1. Apparatus and materials	55	..	.	66	..	..	..	..	..	121
2. Miscellaneous	299	..	16	..	..	..	42	..	..	357
Total ..	354	..	16	66	..	..	42	..	..	478
Total ..	55,253	16	9,014	14,586	15,556	12,891	15,739	3,979	1,101	1,28,135
Non-voted ..	33,184	..	6,140	9,946	9,997	11,059	9,804	3,741	..	83,871
Voted ..	22,069	16	2,874	4,640	5,559	1,832	5,935	238	1,101	44,264
52. A. *b.* Conservancy and works ..	168	16	27	32	261	74	262	..	2	842
52. A. *c.* (ii) Regeneration establishments.	55,253	16	9,014	14,586	15,556	12,891	15,739	3,979	1,101	1,28,135
Total ..	55,421	32	9,041	14,618	15,817	12,965	16,001	3,979	1,103	1,28,977
Grand Total ..	55,421	32	9,041	14,618	15,817	12,965	16,001	3,979	1,103	1,28,977

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	Salem, North.	Salem, Central.	Salem, South.	Total.
FOURTH CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *b. Conservancy and Works.*							
I Forest produce removed by Government agency—Voted—							
Timber	..	911	149	500	..	238	1,498
Other produce—							
1. Firewood and charcoal ..	..	..	..	14	..	..	14
2. Sandalwood	..	255	9,802	17,550	3,088	1,620	32,315
3. Grass and other minor produce	..	..	79	..	..	..	79
Total ..	..	1,166	10,030	17,764	3,088	1,858	33,906
II. Timber and other produce removed from the forests by consumers and purchasers ..	..	6,500	8,131	5,694	10,074	5,691	36,490
III. Maintenance, repairs and renewals—							
Feed and keep of livestock.	..	20	..	..	..	..	20
Renewals and replacements of stores and tools and plant	38	— 4	32	102	196	148	512
Total ..	38	16	32	102	196	148	532
Communications and buildings—							
Roads and bridges	..	2,052	4,364	3,553	1,194	1,952	13,115
Buildings	..	2,444	4,045	1,592	1,640	2,655	12,376
Other works	..	20	127	54	19	313	533
Total ..	..	4,516	8,536	5,199	2,853	4,920	26,024
IV. Conservancy and regeneration—							
1. Maintenance of boundaries	..	111	32	154	804	..	1,101
2. Regeneration	..	630	2,123	522	739	557	4,571
3. Fire protection	..	719	1,906	942	1,482	958	6,007
4. Other works	..	318	..	9	51	..	378
Total ..	..	1,778	4,061	1,627	3,076	1,515	12,057
V. Miscellaneous—							
Rates and taxes—Non-Voted.	..	..	89	47	..	..	136
Law charges	..	2	..	..	10	45	57
Drift and waifwood and confiscated forest produce	..	15	2	1	12	11	41
Rent of leased forests and payments to shareholders in forests managed by Government	..	..	..	24	..	..	24
Honoraria—Voted	..	..	18	50	60	235	363
Supplies and Services—Voted—Miscellaneous ..	..	..	..	866	..	280	1,146
Total .	..	17	109	988	82	571	1,767
VI. Suspense—Works advances—Voted	..	..	— 61	— 124	..	..	— 185
Total ..	38	13,993	31,238	31,250	19,369	14,703	1,10,591
Non-voted ..	..	..	89	47	..	..	136
Voted ..	38	13,993	31,149	31,203	19,369	14,703	1,10,455

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	Salem, North.	Salem, Central.	Salem, South.	Total.
FOURTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments.*							
Pay of Officers—Non-voted—							
Pay excluding passage pay ..	25,548	2,661	12,328	9,000	2,125	..	51,662
Pay of Officers—Voted	..	6,486	9,342	..	8,810	7,250	31,888
Pay of Establishments—Voted—							
1. Permanent	10,550	42,463	68,443	44,349	44,934	35,930	2,46,669
2. Temporary	..	1,106	2,118	3,138	1,193	1,613	9,168
Total ..	10,550	50,055	79,903	47,487	54,937	44,793	2,87,725
Allowances—Non-voted—							
Travelling allowance	2,625	772	2,523	2,018	812	..	8,750
Other compensatory	..	..	..	489	..	..	489
Total ..	2,625	772	2,523	2,507	812	..	9,239
Allowances—Voted—							
1. Travelling allowance	669	5,899	7,492	7,906	4,875	5,895	32,736
2. Fixed travelling allowance ..	..	1,987	3,927	2,141	1,996	1,721	11,772
3. Other compensatory	..	664	1,092	1,063	526	698	4,043
Total ..	669	8,550	12,511	11,110	7,397	8,314	48,551
Contract Contingencies—Voted ..	1,296	2,012	3,176	2,822	2,500	1,765	13,571
Non-contract Contingencies—Non-voted—							
Rates and taxes	..	143	147	30	167	263	750
Non-contract Contingencies—Voted—							
1. Rents	6,103	374	3,661	937	1,771	1,171	14,017
2. Miscellaneous	..	46	65	47	21	166	345
Total ..	7,399	2,575	7,049	3,836	4,459	3,365	28,683
Supplies and Services—General—							
1. Apparatus and Materials ..	17	116	..	132	17	..	282
2. Miscellaneous	..	6	..	..	..	..	
Total ..	17	122	..	132	17	..	288
Total ..	46,808	64,735	1,14,314	74,072	69,747	56,472	4,26,148
Non-voted ..	28,173	3,576	14,998	11,537	3,104	263	61,651
Voted ..	18,635	61,159	99,316	62,535	66,643	56,209	3,64,497
8. *c. ii. Research.*							
Charges payable to Governments departments and others	..	..	..	9,241	..	..	9,241
52-A. *b. Conservancy and works.*							
IV. Live-stock, stores and tools and plant—Voted—							
Purchase of stores and tools and plant	..	93	35	..	610	..	738
V. Works—Voted—							
Roads and bridges—							
Works in progress	..	..	1,344	55	..	.	1,399
New works	..	4,326	454	265	50	50	5,145

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	Salem, North.	Salem Central.	Salem South.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
FOURTH CIRCLE—*cont.*							
52-A. *b. Conservancy and works* - cont.							
V. Works—Voted—*cont.*							
Buildings—							
Works in progress	..	..	..	850	..	1,480	2,330
New works	..	95	563	1,749	193	1,588	4,188
Other works—							
New works	..	1,278	1,913	296	82	13	3,582
Total ..	..	5,699	4,274	3,215	325	3,131	16,644
VI. Organization, improvement and extension of forests—Voted—							
1. Demarcation	..	..	..	323	..	..	323
3. Surveys—Local ..	..	..	..	..	..	75	75
8. Other works	..	..	214	60	..	..	274
Total ..	..	..	214	383	..	75	672
Total ..	..	5,792	4,523	3,598	935	3,206	18,054
Voted ..	..	5,792	4,523	3,598	935	3,206	18,054

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account head (major, minor and sub-heads and units of appropriation).	Direction.	Kollegal.	Coimbatore, North.	Coimbatore, South.	Madura.	Tinnevelly.	Tanjore.	Circle Total.
FIFTH CIRCLE. 8. *b. Conservancy and Works.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs	Rs.
Forest produce removed by Government agency—								
Timber	..	..	392	6,457	552	8,740	..	16,141
Other produce—								
Firewood and charcoal	..	..	370	1,845	1,031	3,980	..	7,226
Bamboos	..	..	..	..	..	..	..	..
Sandalwood	631	6,272	13,773	..	..	114	..	20,790
Grass and other minor produce	..	..	92	..	..	..	..	92
Forest produce removed by private agency	..	10,689	10,416	2,662	12,859	6,355	261	43,142
Maintenance and repairs—								
Feed and keep of cattle	..	..	..	6,550	..	..	..	6,550
Renewals of stores, etc.	2	78	179	448	105	293	..	1,105
Communications and buildings—								
Roads and bridges	..	10,153	8,604	872	11,458	4,804	..	35,891
Buildings	..	1,420	3,435	1,907	3,396	1,433	336	11,927
Other works	..	5	38	461	215	98	95	910
Conservancy and regeneration—								
Maintenance of boundaries	..	..	301	57	— 25	50	..	383
Regeneration	..	..	97	532	159	431	..	1,219
Fire protection	..	776	1,366	320	2,178	..	..	4,640
Other works	..	338	953	410	100	607	..	2,408
Miscellaneous—								
Rates and taxes—Non-voted	..	..	..	..	238	..	..	238
Law charges—Voted	..	..	370	24	..	..	..	394
Drift and waifwood	..	..	14	2	..	..	..	16
Honoraria—Voted	..	185	5	..	15	..	..	205
Supplies and services—Miscellaneous.	..	..	1,755	..	..	21	..	1,776
Suspense—Works—Advances	..	..	..	— 42	20	114	..	92
Total	633	29,816	42,160	22,505	32,299	27,040	692	1,55,145
52-*A. Capital Outlay on Forests.* *b. Conservancy and works.*	..	..	..	1,250	..	..	..	1,250
Rent of leased forests	..	..	..	4,948	..	..	..	4,948
Live stock, stores, etc.—								
Purchase of livestock	..	..	..	2,455	..	..	..	2,455
Feed and keep of livestock	..	147	551	91	236	57	..	1,082
Purchase of stores, tools, etc-	..							
Works—Roads and bridges—								
New works	..	..	79	..	2,050	191	..	2,320
Works in progress	..	397	..	15,250	354	955	..	16,956
Buildings—								
New works	..	..	..	4,819	..	745	..	5,564
Works in progress	..	2,272	1,315	9	1,296	1,610	..	6,502
Other works—								
Works in progress	..	..	..	..	..	..	..	..
New works	..	68	157	..	..	238	..	513
Organization, improvement and extension of forests—								
Demarcation	..	777	111	..	1,099	..	..	1,987
Sowing and planting	..	..	..	8,664	373	420	..	9,457
Protection from fire	..	..	..	1,084	..	..	..	1,084
Other works	..	..	..	547	1,066	..	..	1,613
Supplies and services—Voted—Miscellaneous.	..	..	..	492	..	..	..	492
Total	..	3,661	2,213	39,609	6,474	4,266	..	56,223

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account head (major, minor, sub-heads and units of appropriation).	Direction.	Kollegal.	Coimbatore, North.	Coimbatore, South.	Madura.	Tinnevelly.	Tanjore.	Total.
FIFTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
52-*A. b. Conservancy and Works*—cont.								
52-d.—Investments in Government commercial undertakings	..	..	..	28,261	..	..	..	28,261
Deduct recoveries of investments in Government commercial undertakings.	..	..	..	22,608	..	..	..	22,608
8. *c. i. District Establishments.*								
Pay of officers—								
Non-voted	27,215	6,864	11,722	15,381	11,226	8,000	..	80,478
Voted	..	.	..	..	..	3,150	..	3,150
Pay of establishment—								
Permanent	10,076	30,101	36,130	22,715	47,599	37,967	906	1,85,494
Temporary	34	308	643	861	482	530	..	2,858
Allowances—Non-voted —								
Travelling allowances	2,321	2,281	2,748	4,575	4,919	3,246	..	20,090
Cost of passages	3,754	..	..	..	..	..	..	3,754
Allowances—Voted—								
Travelling allowances	1,784	5,013	6,209	3,998	6,851	4,259	3	23,117
Fixed travelling allowance	..	1,378	1,767	498	2,713	1,373	120	7,849
Other compensatory	..	525	646	141	1,177	415	..	2,904
Contract contingencies	1,962	1,701	2,145	1,574	2,513	2,155	50	12,100
Non-contract contingencies—Non-voted—								
Rates and taxes	..	38	111	69	232	85	..	535
Non-contract contingencies—Voted—								
Rents	1,255	1,582	969	1,626	863	683	..	6,978
Books and periodicals	4	..	4	..	..	..	..	8
Miscellaneous	237	424	89	78	28	38	..	894
Supplies and services—General—								
Apparatus and materials	..	106	142	276	71	36	..	631
Total ..	48,642	50,321	63,325	51,792	78,744	61,937	1,079	3,55,840

8-*Losses on commercial Government undertakings—Voted*—1928-29.

Sub-head.	South Coimbatore.	Total.
	RS.	RS.
ii. Mount Stuart Forests	20,492	20,492

52-*A. c. Establishments—ii. Regeneration*—1928-29.

Units of appropriation.	South Coimbatore.	Circle total.
Pay of establishments—Voted—	RS.	RS.
Permanent	6,588	6,588
Temporary	158	158
Allowances—Voted—		
Travelling allowance	1,279	1,279
Fixed travelling allowance ...	666	666
Other compensatory	73	73
Non-contract contingencies—Voted—		
Rents	2,582	2,582
Supplies and services—Voted—		
Miscellaneous	312	312
Total ...	11,658	11,658

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor, sub-heads and units of appropriation).	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE.		RS.	RS.	RS.	RS.	RS.		RS.
8. *b. Conservancy and Works.*								
I. Forest produce removed by Government agency—Voted—								
Timber	..	23,783	57,698	87,366	4,393	45,471	..	2,18,716
Firewood and charcoal ..	..	250	..	..	13,226	..	..	13,476
Sandalwood	..	208	391	..	1,206	..	..	1,805
Grass and other minor produce	..	..	..	164	(*a*) 523	..	..	687
Total (I) ..	..	24,246	58,089	87,530	19,348	45,471	..	2,34,684
II. Forest produce removed by private agency—								
Voted	..	2,134	1,037	2,296	64	4,484	..	10,015
III. Maintenance, repairs and renewals—								
Feed and keep of live-stock	..	5,110	12,919	32,555	17,871	..	..	68,455
Renewals or replacements of stores and tools and plant ..	..	513	1,171	1,990	1,367	83	..	5,124
Communications and buildings—								
Roads and bridges ..	..	864	565	5,239	2,739	3,086	..	12,493
Buildings	..	1,151	923	2,514	2,081	1,818	..	8,490
Other works	..	219	76	910	309	109	..	1,623
Total (III) ..	..	7,860	15,654	43,208	24,367	5,096	..	96,185
IV. Conservancy and regeneration—								
Maintenance and boundaries	..	229	260	64	823	42	..	1,418
Regeneration	..	2,693	1,242	14,115	3,105	3,806	..	24,961
Protection from fire ..	..	2,332	2,062	1,307	2,205	2,717	..	10,623
Other works	..	147	593	5	802	115	..	1,662
Total (IV) ..	..	5,401	4,157	15,491	6,935	6,680	..	38,664
V. Miscellaneous—								
(1) Rates and taxes (Non-voted)	..	..	139	31	3,546	145	..	3,861
(2) Law charges	..	4	..	..	..	50	..	54
(3) Drift and waifwood ..	..	18	15	..	3	7	..	43
(4) Grants-in-aid N.G.A.	..	..	..	..	5,311	..	..	5,311
(5) Supplies and Services —General—Miscellaneous	..	10	190	1,065	28	15	..	1,308
(6) Honoraria—Voted ..	..	..	..	..	25	18	..	43
(7) Other charges	..	..	..	..	260	..	..	260
Total (V) ..	..	32	344	1,096	9,173	235	..	10,880
VI, Suspense—Works—Advance	..	..	— 553	638	— 260	113	..	— 62
Total .	..	39,673	78,728	1,50,259	59,627	62,079	..	3,90,366
Non-voted ..	..	..	139	31	3,546	145	..	3,861
Voted ..	..	39,673	78,589	1,50,228	56,081	61,934	..	(*b*)3,86,505

(*a*) Includes Rs. 227 spent on account of the Madura division.

(*b*) Excludes expenditure incurred by the Forest Utilization Officer and the Forest Engineer as shown below :—

		By the Forest Utilization Officer.		By the Forest Engineer.
		RS.		RS.
South Mangalore ..	Kacaragod depot ..	9,765	Parappa Saw Mill ..	23,482
Wynaad	Nanjangod depot ..	5,157	Chedleth Mill ..	26,054

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor, ,, sub-heads and units of appropriation).	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments.*								
Pay of officers—Non-voted—								
Pay excluding passage pay ..	26,245	..	9,024	12,725	13,339	2,125	1,755	65,213
Pay of officers—Voted ..	3,786	8,001	7,501	15,564	..	7,701	1,344	43,897
Pay of establishments—Voted—								
1. Permanent	10,920	35,481	32,294	42,929	37,222	34,248	2,441	1,95,535
2. Temporary	24	844	1,248	2,057	660	1,532	..	6,365
Total ..	14,730	44,326	41,043	60,550	37,882	43,481	3,785	2,45,797
Allowances—Non-voted—								
Travelling allowance	5,424	..	2,488	3,800	3,983	762	..	16,457
Cost of passage, etc.	..	..	..	..	3,697	..	..	3,697
Total ..	5,424	..	2,488	3,800	7,680	762	..	20,154
Allowances—Voted—								
1. Travelling allowance ..	4,242	5,733	6,918	12,159	4,428	10,095	..	43,575
2. Fixed travelling allowance.	..	1,263	1,555	2,440	1,766	1,651	..	8,675
3. Other compensatory ..	1,751	216	427	399	4,940	234	..	7,967
Total ..	5,993	7,212	8,900	14,998	11,134	11,980	..	60,217
Contract contingencies—Voted ..	2,471	1,446	2,407	2,023	1,782	1,781	..	11,910
Non-contract contingencies—Non-voted—								
Rates and taxes	2	..	..	..	693	7	..	702
Non-contract contingencies—Voted—								
1. Rents	1,140	312	541	1,054	1,181	888	..	5,116
2. Books and periodicals ..	4	..	..	..	..	6	..	10
3. Miscellaneous	127	19	33	180	45	60	..	464
Total ..	3,744	1,777	2,981	3,257	3,701	2,742	..	18,202
Supplies and services—General—								
1. Apparatus and materials ..	..	42	288	213	..	403	..	946
Total ..	56,136	53,357	64,724	95,543	73,736	61,493	5,540	4,10,529
Non-voted ..	31,671	..	11,512	16,525	21,712	2,894	1,755	86,069
Voted ..	24,465	53,357	53,212	79,018	52,024	58,599	3,785	(*c*)3,24,460

(*c*) Excludes expenditure by the Forest Utilization Officer and the Forest Engineer as shown below:—

		By the Forest Utilization Officer.		By the Forest Engineer.
		RS.		RS.
South Mangalore ..	Kasaragod depot ..	3,370	Parappa Saw Mill ..	804
Wynaad	Nanjangod depot ..	3,564	Chedleth Saw Mill ..	3,016
	Total ..	6,934	Total ..	3,820

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor, sub-heads and units of appropriation).	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8-*a. Establishments*—cont.								
52-*A. b. Conservancy and Works.*								
I.—Forest produce removed by Government Agency—								
II. Forest produce removed by private agency—Voted.	..	..	..	..	..	..	290	290
III. Drift and waifwood and confiscated forest produce —Voted—								
IV. Rent of leased and part-owned forest—Voted.	..	..	..	..	..	..	700	700
V. Livestock, stores tools and plant—Voted—								
Purchase of livestock ..	..	..	..	3,927	2,250	..	3,424	9,601
Feed and keep of livestock.	..	..	..	..	..	..	222	222
Purchase of stores and tools and plant.	..	198	389	995	..	608	302	2,492
Total ..	..	198	389	4,922	2,250	608	4,938	13,305
VI. Works—Voted—								
Roads and bridges—								
Works in progress ..	..	..	..	4,450	..	..	108	..	4,558
New works	..	..	..	1,326	1,637	..	1,228	909	5,100
Buildings—								
Works in progress ..	..	..	135	(—) 18	499	..	2	..	618
New works	..	..	3,496	3,693	4,025	..	712	11,955	23,881
Other works—								
Works in progress ..	..	..	..	313	312	..	..	..	625
New works	..	..	322	..	172	..	..	16	510
Total ..	..	..	3,953	9,764	6,645	..	2,050	12,880	35,292
VII. Organization, improvement and extension of forests—Voted—								
1. Demarcation ..	..	..	..	..	665	..	..	1	666
5. Working plans ..	..	..	..	..	..	..	..	12	12
6. Sowing and planting.	..	..	..	..	..	..	..	18,675	18,675
7. Protection from fire.	..	..	..	..	..	..	..	3,578	3,578
8. Other works ..	..	..	..	..	..	..	..	232	232
Total, 52. *A.b.*—Conservancy and works.	..	4,151	10,153	12,232	2,250	2,658	40,316	71,760
Voted ..	..	4,151	10,153	12,232	2,250	2,658	40,316	(*d*)71,760
52-A. *a.—Establishment.*								
Pay of officers—Non-voted—								
Pay excluding passage pay ..	..	..	..	..	..	..	6,555	6,555
Pay of officers—Voted	..	..	..	..	..	..	1,696	1,696
Pay of establishments—Voted—								
1. Permanent	..	..	..	..	..	..	13,511	13,511
2. Temporary	..	..	..	..	..	..	2,652	2,652
Total ..	..	..	..	..	..	..	17,859	17,859

(*d*) Excludes Rs. 993 spent by the Forest Utilization Office for extension of the Depot keepers' quarters at Nanjangod (Wynaad division).

Summary of expenditure of the different districts for the year 1928-29—*cont.*

Account heads (major, minor, sub-heads and units of appropriation).	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur Valley forests.	Total.
SIXTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
52-A. *e.—Conservancy and Works*—cont.								
Allowances—Non-Voted—								
Travelling allowance	..	..	..	..	..	..	759	759
Allowances—Voted—								
1. Travelling allowance ..	..	..	..	..	..	..	1,998	1,998
2. Fixed travelling allowance.	..	..	..	..	..	..	953	953
3. Other compensatory ..	..	..	..	..	..	..	218	218
Total ..	..	..	..	..	..	..	3,928	3,928
Honoraria—Voted—								
Contract Contingencies—Voted..	..	..	..	..	..	..	341	341
Total ..	..	..	..	..	..	..	341	341
Non-contract Contingencies—Voted—								
4. Telephone Charges ..	..	..	..	..	..	..	222	222
5. Books and Periodicals ..	..	..	..	..	..	..	6	6
6. Miscellaneous	..	..	..	..	..	..	17	17
Total ..	..	..	..	..	..	..	245	245
Supplies and services—General—								
2. Apparatus and Materials ..	..	..	..	..	..	..	101	101
Total ..	..	..	..	..	..	..	29,029	29,029
Voted ..	..	..	..	..	..	..	28,289	28,289
52. A-d. Investments on Government Commercial undertakings.								
Nilambur valley forest ..	..	..	..	..	..	..	926	926
Deduct—Recoveries of investment in Government Commercial undertakings	..	..	..	..	..	..	— 439	— 439
Total, 52. *A.*—Capital outlay on forests.	..	4,151	10,153	12,232	2,250	2,658	69,092	1,00,536

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Summary of revenue and expenditure of the different divisions of the Forest Engineering Branch for the year 1928-29.

Units of appropriation.	Forest Engineer, Madras.	Forest utilization officer.	Logging Engineer Ootacamund.	Forest Engineer-in-charge of saw mills and extraction.	Chenat Nair Exploitation division.	Forest economist.	Chief Forest Engineer.	Total.
ENGINEERING BRANCH.	RS.	RS.	RS.	RS.		RS.	RS.	RS.
8. (*b*) *Conservancy and Works.*								
I. Forest produce removed by Government Agency—								
Timber	..	6,725	18,823	1,07,927	7,813	87	..	1,41,375
Firewood and charcoal ..	..	..	..	..	..	..	..	..
Bamboos	..	..	..	..	..	..	..	..
Sandalwood	..	..	..	..	..	..		
Grass and other minor produce.	..	..	27	..	..	..	..	27
II. Forest produce removed by private agency Voted—	..	..	..	..	..	..	..	..
III. Maintenance, repairs and renewals. Feed and keep of cattle—								
Renewals or replacements of stores, tools and plants	1,491	564	117	27,802	419	..	..	30,393
Communications and buildings—								
Roads and bridges ..	1,819	..	..	3,189	..	..	..	5,008
Buildings	30	718	..	720	..	..	..	203
Other works	203	..	..	..	..	..	..	1,468
IV. Conservancy regeneration—								
V. Miscellaneous—								
Non-voted—Rates and taxes	..	..	..	..	..	..	..	..
Supplies and services—								
Miscellaneous ..	68	45	..	425	..	..	..	538
Other charges	..	..	..	2,171	..	..	..	2,171

Summary of revenue and expenditure of the different divisions of the Forest Engineering Branch for the year 1928-29—*cont.*

Units of appropriation.	Forest Engineer, Madras.	Forest Utilization officer, Madras.	Logging Engineer, Ootacamund.	Forest Engineer-in-charge of saw mills and extraction Division.	Forest Economist.	Chief Forest Engineer.	....	Total.
ENGINEERING BRANCH—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. (*b*) *Conservancy and Works* —cont.								
VI. Suspense Work Advance—Voted	—151	198	..	—3,323	..	..	..	—3,276
Total ..	3,460	8,250	18,967	1,38,911	8,232	87	..	1,77,907
8. (*c*) iii. *Exploitation.*								
Pay of officers—								
Non-voted	7,729	16,035	6,500	6,036	..	14,497	196	50,993
Voted	6,861	6,793	24,880	10,051	..	..	36,000	84,585
Pay of establishments—Voted—								
Permanent	11,668	3,536	19,550	7,263	139	110	1,539	43,805
Temporary	..	12,987	11,258	2,585	..	1,966	8,861	37,657
Allowances—Non-voted—								
Travelling allowances	2,252	5,111	2,008	2,449	..	2,512	..	14,332
Other compensatory	..	4,335	..	..	..	987	111	5,433
Cost of passages granted under the Superior Civil Service Rules in 1924	1,870	2,153	..	..	..	..	2,267	6,290
Allowances—Voted—								
Travelling allowances .. .	10,199	8,383	16,032	6,447	..	574	10,752	52,387
Fixed travelling allowance ..	128	110	3 741	425	..	..	..	4,404
Other compensatory	330	2,327	1,498	366	..	..	2,217	6,738
Contract contingencies	1,262	1,400	1,294	1,012	..	..	2,059	7,027
Non-contract contingencies—Non-voted—								
Rates and Taxes	51	6	..	..	..	..	..	57

Summary of revenue and expenditure of the different divisions of the Forest Engineering Branch for the year 1928-29—*cont.*

Units of appropriation.	Forest Engineer, Madras.	Forest Utilization officer.	Logging Engineer Ootacamund.	Forest Engineer-in-charge of saw mills and extraction.	Chenat Nair Exploitation division.	Forest Economist.	Chief Forest Engineer.	Total.
ENGINEERING BRANCH—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8 (*c*)-iii. *Exploitation*—cont.								
Non-contract contingencies—Voted—								
Rents	..	79	237	..	..	..	4,685	5,001
Telephone charges	..	..	..	..	..	..	275	275
Books and periodicals ..	..	4	..	..	..	..	76	80
Miscellaneous	6	10	..	..	..	..	25	41
Supplies and services—Voted—								
Apparatus and materials ..	483	67	422	153	..	..	3,603	4,728
Miscellaneous	..	260	20,332	..	..	..	1,064	21,656
Total ..	42,839	63,596	107,752	36,785	139	20,646	73,730	3,45,489
Non-Voted ..	11,902	27,640	8,508	8,487	..	17,996	2,574	77,105
Voted ..	30,937	35,956	99,244	28,302	139	2,650	71,156	2,68,384
8 (*e*) *Losses on Government Commercial Undertakings.*								
IV. Chenat Nair Exploitation scheme including Olavakot Saw mill	..	..	..	..	84,776	..	..	84,776
Total ..	..	..	..	..	84,776	..	..	84,776
52-*A. b. Conservancy and Works.*								
II. Forest produce removed by private agency	..	190	..	..	..	..	..	190

Summary of revenue and expenditure of the different divisions of the Forest Engineering Branch for the year 1928-29—*cont.*

Units of appropriation.	Forest Engineer, Madras.	Forest Utilization officer, Madras.	Logging Engineer, Ootacamund.	Forest Engineer-in-charge of saw mills and extraction division.	Forest economist.	Chief Forest Engineer.	..	Total.
ENGINEERING BRANCH—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
52-*A. b. Conservancy and Works* —cont.								
V. Livestock, stores, tools and plant—								
Feed and keep of livestock.	..	117	..	..	..	..	..	117
Purchase of stores, tools and plant.	..	61	..	..	3,698	279	..	4,038
VI. Works—Voted—								
Roads and bridges—								
Works in progress ..	1,190	..	..	..	..	..	..	1,190
New works	34,363	..	..	10,293	..	..	..	44,656
Buildings—								
Works in progress ..	17,794	..	..	..	..	..	..	17,794
New works	35,279	1,017	..	..	539	2,980	..	39,815
VII. Organization, improvements and extension of forests—								
Demarcation	..	25	..	..	..	..	..	25
Sowing and planting ..	..	1,872	..	..	..	..	..	1,872
VIII. Miscellaneous—								
Non-contract contingencies.	..	..	..	..	..			
Non-voted—Rates and taxes.	..	24	..	..	..	..	..	24
IX. Suspense works—advances—Voted.	..	..	..	..	..	..	..	..
Total ..	88,626	3,306	..	10,293	4,237	3,259	..	1,09,721

Summary of revenue and expenditure of the different divisions of the Forest Engineering Branch for the year 1928-29—*cont.*

Units of appropriation.	Forest Engineer, Madras.	Forest Utilization officer, Madras.	Logging Engineer, Ootacamund.	Forest Engineer-in-charge of saw mills and extraction division.	Forest Economist.	Chief Forest Engineer.	Exploitation division.	Total.
ENGINEERING BRANCH—*cont.*	RS.	RS	RS.	RS.	RS.	RS.	RS.	RS.
52-A. d. Investments in Government commercial undertakings.								
Mount Stuart Forests	— 449	..	..	..	..	..	..	— 449
Chenat Nair Exploitation scheme including Olavakkot Saw Mill.	Nil.	..	..	..	..	..	11,611	11,611
Deduct recoveries of investments in Government commercial undertakings.	Nil.	..	..	..	..	..	— 66,475	— 66,475
Total ..	— 449	..	..	..	..	..	— 54,864	— 55,313

Summary of revenue and expenditure for 1928–29.

Summary of revenue and expenditure for 1928-29.

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.	Sixth Circle.	Engineering Branch.	Forest College.	Parlakimedi Maliahs.	Total. 1928-29.	Total. 1927-28.
VIII—FOREST—RECEIPTS.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
(a) Timber and other produce removed from the forests by Government Agency—											
Sandalwood	..	122	..	4,84,480	3,61,513	13,578	..	..	..	8,59,693	10,14,371
Other produce—											
Timber	2,01,346	44,365	244	5,023	23,865	2,61,488	2,99,341	..	2,797	8,41,469	5,98,567
Firewood and charcoal	2,871	8,799	..	835	19,794	48,802	..	..	2,376	83,537	88,368
Bamboos	95	729	..	17	17	8	..	..	..	866	2,000
Other minor produce	8,161	445	..	492	39	802	2,026	..	178	12,143	13,151
Total ..	2,12,473	54,338	244	6,427	43,715	3,14,100	3,01,367	..	5,351	9,38,015	7,02,086
Total (a) ..	2,12,473	54,460	244	4,90,907	4,05,228	3,27,678	3,01,367	..	5,351	17,97,708	17,16,457
(b) Timber and other produce removed from the forests by consumers or purchasers—											
Forest Department—											
Timber	42,765	91,409	..	2,190	6,319	20,892	6	..	5,296	1,68,877	1,02,733
Firewood and charcoal ..	2,11,922	57,676	..	59,344	1,73,285	67,018	..	..	5,323	5,74,568	5,40,455
Bamboos	1,28,251	62,629	..	1,41,004	39,266	26,086	..	..	4,404	4,01,640	3,39,283
Grazing and fodder grass ..	1,15,626	1,66,103	..	2,05,460	1,35,533	31,742	..	..	1,427	6,55,891	6,36,582
Other minor produce	54,216	55,921	..	77,842	83,059	30,702	3,839	..	30,435	3,36,014	3,08,381
Total, Forest Department ..	5,52,780	4,33,738	..	4,85,840	4,37,462	1,76,440	3,845	..	46,885	21,36,990	19,27,434
Revenue Department—											
Timber	26,504	41,107	..	85,579	21,010	19,992	..	..	..	1,94,192	1,07,281
Firewood and charcoal ..	30,441	16,060	..	32,275	38,116	13,518	..	..	..	1,30,410	1,88,377
Bamboos	236	..	..	6	520	53	..	..	..	815	2,337
Other minor produce ..	62,758	3,16,230	..	91,910	52,683	11,018	..	..	..	5,34,599	4,31,677
Total Revenue Department ..	1,19,939	3,73,397	..	2,09,770	1,12,329	44,581	..	..	..	8,60,016	8,19,672

Total, (b) ..	*6,72,719*	*8,07,135*	..	6,95,610	5,49,791	2,21,021	3,845	..	..	29,97,006	27,47,106
(c) Drift and waif wood and confiscated Forest produce.	5,174	2,171	..	834	1,288	1,448	..	..	33	10,948	12,177
(d) Profits from Government commercial undertakings.	44,929	..	..	..	..	2,17,670	..	..	..	2,62,599	1,41,228
(e) Miscellaneous—											
Fines and forfeitures	4,885	3,818	..	4,924	2,902	590	102	..	36	17,257	15,508
Forest College	..	..	..	..	..	..	..	54,122	..	54,122	68,192
Rents of buildings	7,002	8,304	685	5,744	15,205	19,550	2,463	1,706	216	60,875	37,922
Other sources	60,376	71,517	39	93,598	71,678	70,571	21,208	..	1,860	3,90,847	3,77,202
Total, (e) ..	72,263	83,639	724	1,04,266	89,785	90,711	23,773	55,828	2,112	5,23,101	4,98,824
(f) Recoveries of investments in Government commercial undertakings.	1,41,985	..	..	..	2,048	1,718	..	..	..	1,45,751	17,050
(g) Recoveries of indirect charges from Government commercial undertakings.	450	..	..	..	47,263	1,06,228	29,906	..	..	1,83,847	23,627
Total ..	11,48,929	9,46,905	968	12,91,617	10,95,403	9,66,474	3,58,891	55,828	54,381	59,19,396	51,56,469
Deduct Refunds—Voted ..	2,875	2,367	..	12,666	9,070	1,279	65	980	31	29,333	36,376
Grand Total .. (a)	11,46,054	9,44,538	968	12,78,951	10,86,333	9,65,195	3,58,826	54,847	54,350	58,90,062	51,20,093
Added or deducted with reference to the Accountant-General's actuals.	(b) + 1	(b) + 1	(b) — 1	(c) — 34	(b) — 3	..	(b) + 5	(c) — 228	..	(b) — 259 (d) 4,444	(c) + 8,065 (d) 276
EXPENDITURE.	..	..	..	..	..	..	..	..	..	..	..
8. (b) *Conservancy and Works.*										58,94,247	51,28,434
I. Forest produce removed by Government Agency—											
Timber	41,125	6,215	..	1,498	16,141	2,18,716	1,41,375	..	738	4,25,808	3,75,835
Other produce—											
Firewood and charcoal	2,482	3,051	..	14	7,226	13,476	..	..	498	26,747	32,290
Bamboos	..	472	..	..	..	..	..	..	..	472	1,147
Sandalwood	..	62	..	32,315	20,790	1,805	..	..	..	54,972	53,826
Grass and other minor produce ..	4,861	253	..	79	92	687	27	..	49	6,048	7,326
Total ..	48,468	10,053	..	33,906	44,249	2,34,684	1,41,402	..	1,285	5,14,047	4,70,694
II. Forest produce removed by private Agency.	39,374	46,100	..	36,490	43,142	10,015	..	..	1,583	1,76,704	1,33,825

(a) Includes revenue from Golgonda Agency.
(b) Differences due to rounding.
(c) Adjusted with reference to the Accountant-General's actuals.
(d) Chief Conservator's office [VIII (e).—Other sources].
(e) Includes revenue from Agency tracts.

Summary of revenue and expenditure for 1928-29—*cont.*

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.	Sixth Circle.	Engineering Branch.	Forest College.	Parlakimedi Maliahs.	Total. 1928-29.	Total. 1927-28.
EXPENDITURE—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
8. (*b*) *Conservancy and Works*—cont.											
III. Maintenance, repairs and renewals—											
Feed and keep of cattle	1,185	1,644	..	20	6,188	68,455	..	..	..	77,854	80,684
Renewals or replacements of tools and plant.	5,719	827	..	512	1,105	5,124	30,393	..	39	43,719	25,294
Total ..	6,904	2,471	..	532	7,293	73,579	30,393	..	89	1,21,573	..
IV. Communications and buildings—											
Forest College works	..	..	..	..	..	..	..	2,586	..	2,586	2,671
Chenchu works	..	435	..	..	..	..	..	..	..	435	467
Roads and bridges	7,134	7,925	..	13,115	35,891	12,493	5,008	..	..	81,566	82,507
Buildings	17,484	12,034	..	12,376	11,927	8,490	1,468	..	184	63,963	71,401
Other works	203	567	..	533	910	1,628	203	..	..	4,044	4,751
Total ..	24,821	20,961	..	26,024	48,728	22,611	6,679	2,586	184	1,52,594	1,61,797
V. Conservancy and regeneration—											
Maintenance of boundaries ..	599	883	..	1,101	383	1,418	..	..	..	4,384	3,589
Forest—Surveys	16	600	..	..	..	..	..	..	..	616	608
Regeneration	3,634	1,519	..	4,571	1,219	24,961	..	..	95	35,999	38,731
Fire protection	14,024	4,058	..	6,007	4,640	10,623	..	..	590	39,942	42,266
Other works	4,039	2,161	..	378	2,408	1,662	..	..	..	10,648	14,789
Total ..	22,312	9,221	..	12,057	8,650	38,664	..	..	685	91,589	99,981
VI. Miscellaneous—											
Rates and taxes—Non-voted ..	46	..	..	136	238	3,861	..	..	..	4,281	4,104
Law charges	3	9	..	57	394	54	..	..	..	517	336
Drift wood and confiscated stores, forest produce.	133	119	..	41	16	43	..	..	..	352	1,093

Rent leased forests and payments to shareholders in forests managed by Government.	500	..	..	24	..	..	..		..	524	525
Grants-in-aid—Recurring—Voted											
Miscellaneous	..	..	..	..	..	5,311	..	..	..	5,311	5,172
Honoraria—Voted	..	..	..	..	..	..	..	..	..	..	..
Supplies and services—Voted—	35	178	..	363	205	43	..	..	..	829	1,061
Miscellaneous.	6	264	..	1,146	1,776	1,308	538	..	50	5,018	2,740
Other charges	..	..	..	..	..	260	2,171	..	..	2,431	..
Total ..	723	570	..	1,767	2,629	10,860	2,709	..	50	19,328	15,031
VII. Suspense—Works—Advances ..	81	25	5	— 185	92	— 62	— 2,763	..	..	— 3,482	1,805
Grand Total ..	1,42,521	89,491	5	1,10,591	1,54,783	3,90,366	1,77,907	2,586	3,826	10,71,886	9,89,327
Added or deducted with reference to Accountant-General's actuals,	(*a*) — 1	(*a*) — 2	..	..	..	(*a*) + 2	(*a*) — 1	(*a*) — 1	..	(*a*) — 3 (*b*) 6,874	(*c*) 3,690 (*b*) 6, 898
										10,78,857	9,99,915
8. (*c*) *District Establishments.*											
Pay of Officers—Non-voted	55,021	68,524	..	51,662	80,478	65,213	50,993	23,519	..	3,95,410	4,01,917
Pay of officers—Voted	55,938	14,808	..	31,888	3,150	43,897	84,585	26,370	8,048	2,68,684	2,66,364
Pay of establishments—Voted—											
Permanent	2,61,859	2,42,755	..	2,46,669	1,85,494	1,95,535	43,805	19,669	17,004	12,12,790	13,11,838
Temporary	13,609	4,891	..	9,168	2,858	6,365	37,657	2,087	606	77,241	91,925
Allowances—Non-voted—											
Travelling allowance	11,425	11,970	..	8,750	20,090	16,457	14,332	3,147	..	86,171	84,880
Other compensatory	..	..	..	489	..	..	5,433	..	..	5,922	6,000
Cost of passages, etc.	1,976	..	..	..	3,754	3,697	6,290	96	..	15,813	12,638
Allowances—Voted—											
Travelling allowance	54,178	35,253	..	32,736	28,117	43,575	52,387	7,268	2,885	2,56,399	2,45,900
Fixed travelling allowance ..	12,178	10,855	..	11,772	7,849	8,675	4,404	..	682	56,415	66,093
Other compensatory	4,560	4,299	..	4,043	2,904	7,967	6,738	..	98	30,609	29,546
Total ..	4,70,744	3,93,355	..	3,97,177	3,34,694	3,91,381	3,06,624	82,156	29,323	24,05,454	3,41,539

(*a*) Differences due to rounding.
(*b*) Chief Conservator's office.
(*c*) Includes expenditure in Agency tracts.

Summary of revenue and expenditure for 1928–29—*cont.*

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.	Sixth Circle.	Engineering Branch.	Forest College.	Parlakimedi Maliahs.	1928–29.	1927–28.
EXPENDITURE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. (*c*) *District Establishments*—cont.											
Honoraria—Voted	..	..	..	..	..	..	..	855	..	855	855
Contract contingencies—Voted	16,312	16,473	..	13,571	12,100	11,910	7,027	..	1,389	78,782	77,838
Non-contract contingencies—Non-voted—											
Rates and taxes	1,923	1,033	..	750	535	702	57	108	4	5,112	3,698
Non-contract contingencies—Voted—											
1. Pay of menials	..	..	..	..	..	..	..	2,121	..	2,121	2,158
2. Rents	9,327	9,570	..	14,017	6,978	5,116	5,001	22,768	625	73,402	72,101
3. Electric current	..	..	..	..	..	..	..	..	..	..	..
4. Telephone charges	..	..	..	..	..	..	275	175	..	450	404
5. Books and periodicals	..	26	..	..	8	10	80	..	..	124	436
6. Miscellaneous	388	452	..	345	894	464	41	4,256	25	6,865	5,947
Total ..	27,950	27,554	..	28,683	20,515	18,202	12,481	30,283	2,043	1,67,711	78,891
Supplies and services—Voted.											
1. Scholarships and stipends ..	..	..	..	..	..	..	..	..	..	..	..
2. Clothing and equipment ..	..	..	..	..	..	..	..	..	..	..	172
3. Apparatus and materials ..	989	1,040	..	282	631	946	4,728	2,695	100	11,411	7,896
4. Books and periodicals	..	..	..	..	..	..	..	216	..	216	..
5. Miscellaneous	106	2	..	6	..	..	21,656	2,751	..	24,517	2,969
Total ..	1,095	1,038	..	288	631	946	26,384	5,662	100	36,144	11,057
Grants-in-aid—Recurring	..	..	..	..	..	..	..	400	..	400	2,448
Grand Total ..	4,99,789	4,21,947	..	4,26,148	3,55,840	4,10,529	3,45,489	1,18,501	31,466	26,09,709	26,98,246
Added or deducted with reference to Accountant-General's actuals.	(*a*) + 4	(*a*) + 1	..	(*b*)+240	..	(*b*)+ 64	(*a*) — 6	(*a*)— 1	..	(*b*) 302	(*d*) 2,726
	..	..	..	..	..	..	..	..	..	(*c*) 8,174	(*c*) 6,609
Total ..	..	..	..	..	..	..	..	..	..	26,18,185	27,07,581

52. A. CAPITAL OUTLAY.

(b). *Conservancy and works.*											
I. Forest produce removed by Government agency.	..	..	..	..	..	..	..	..	..	..	..
II. Forest produce by private agency ..	..	..	..	..	..	290	190	..	..	480	362
III. Drift and waifwood and Confiscated forest produce	..	..	..	..	..	..	..	..	..	..	1
IV. Rent of leased and part-owned forests.	..	..	..	..	1,250	700	..	..	..	1,950	3,750
V. Live-stock, stores, tools and plant.—											
Purchase of cattle	4,234	..	..	..	4,948	9,601	..	..	..	18,783	17,018
Feed and keep of live-stock ..	..	..	..	..	2,455	222	117	..	..	2,794	240
Purchase of stores tools and plants.	10,613	390	141	738	1,082	2,492	4,038	..	300	19,794	14,287
Total ..	14,847	390	141	738	9,735	13,305	4,345	..	300	43,801	31,515
VI. Works—Voted—											
Forest College—											
Works in progress	..	..	..	..	..	..	..	189	..	189	..
New works	..	..	..	..	..	..	..	..	..	..	..
Roads and bridges—											
Works in progress	762	..	..	1,399	2,320	4,558	1,190	..	..	10,229	11,125
New works	1,208	553	..	5,145	16,956	5,100	44,656	..	..	73,618	27,500
Buildings—											
Works in progress	8,686	844	..	2,330	5,564	618	17,794	..	..	35,336	47,664
New works	5,369	3,430	..	4,188	6,502	23,881	39,815	..	1,369	84,554	1,87,029
Other works—											
Works in progress	..	871	..	..	..	625	..	..	..	1,496	721
New works	1,155	560	..	3,582	513	510	..	..	..	6,320	21,124
Total ..	17,180	5,758	..	16,644	31,855	35,292	1,03,455	189	1,369	2,11,742	2,95,163
VII.—Organization, improvement and extension of forests—											
Demarcation	4,080	..	..	323	1,987	666	25	..	..	7,081	5,087
Cost of forest settlement, etc. ..	..	..	..	..	..	..	..	..	..	..	..
Surveys—Local	4,350	..	..	75	..	..	..	..	..	4,425	1,000
Working plans	..	..	701	..	..	12	..	..	..	713	949
Sowing and planting	..	..	..	..	9,457	81,675	1,872	..	..	30,004	20,743
Protection from fire	..	..	..	..	1,084	3,578	..	..	..	4,662	669
Other works	..	81	..	274	1,613	232	..	..	..	2,200	1,406
Total ..	8,430	81	701	672	14,141	23,163	1,897	..	..	49,085	29,854

(a) Differences due to rounding. (b) Adjusted with reference to Accountant-General's actuals. (c) Chief Conservator's office. (d) Includes expenditure in the Agency tracts.

Summary of revenue and expenditure for 1928-29—*cont.*

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.	Sixth Circle.	Engineering Branch.	Forest College.	Parlakimedi Maliahs.	1928-29.	1927-28.
EXPENDITURE—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
CAPITAL OUTLAY—*cont.*											
52. A. b *Conservancy and Works*—cont.											
VIII.—Miscellaneous—											
Honoraria—Voted	..	..	..	..	..	..	..	..	..	..	..
Non-contract contingencies—Non-voted	..	..	..	..	..	..	..	..	..	..	..
Rates and taxes	..	..	..	..	..	..	24	..	..	24	47
Non-contract contingencies—Voted .	..	..	..	..	..	..	..	..	..	..	..
Miscellaneous—Law charges ..	..	..	..	..	..	..	..	..	..	..	..
Grants-in-aid—Miscellaneous ..	..	..	..	..	..	..	..	..	..	..	..
Recurring	..	..	..	..	..	..	..	..	..	..	..
Supplies and services	..	..	..	..	..	..	..	..	..	..	..
General—Miscellaneous	..	..	..	..	492	..	..	..	..	492	1
Total ..	..	..	..	..	492	..	24	..	..	516	48
Grand Total ..	40,457	6,229	842	18,054	56,223	71,760	1,09,721	189	1,669	3,05,144	3,60,728
Added or deducted with reference to Accountant-General's actuals ..	(*a*) —1	(*a*) +1	..	..	..	..	(*a*) —1	..	..	(*a*) —1 (*b*) 3,516	(*c*) 1,063 (*b*) 8,317
	..	..	..	..	..	..	..	..	..	3,08,659	3,70,103
52. A. c. ii. *Regeneration.*											
Pay of officers—											
Non-voted	..	..	62,524	..	..	6,555	..	..	..	69,079	53,964
Voted	..	..	9,993	..	3,349	1,696	..	..	..	15,038	11,387
Pay of establishments—Voted											
Permanent	..	..	17,562	..	3,239	13,511	..	..	..	34,312	28,658
Temporary	..	..	387	..	158	2,652	..	..	..	3,197	2,242
Allowances—Non-voted—											
Travelling allowances	..	..	15,723	..	..	759	..	..	..	16,482	13,250
Cost of passages, etc.	..	..	5,624	..	..	..	..	..	..	5,624	..

Allowances—Voted—												
Travelling allowances	..	..	10,922	..	1,279	1,998	..	..	..	14,199	11,440
Fixed travelling allowances	..	..	164	..	666	953	..	..	..	1,783	1,034
Other compensatory	..	..	1,337	..	73	218	..	..	..	1,628	1,816
Total ..	..	..	1,24,236	..	8,764	28,842	..	..	..	1,61,342	14,290
Contract contingencies—Voted	..	..	2,494	..	..	341	..	..	..	2,835	2,765
Non-contract contingencies—Non-voted—											
Rates and taxes	..	..	..	..	..	..	..	..	..	..	..
Non-contract contingencies—Voted—											
Pay of menials	..	..	..	..	..	..	..	..	..	..	..
Rents	..	..	832	..	2,582	..	..	..	..	3,414	837
Electric current	..	..	..	..	..	..	..	..	..	..	..
Telephone charges	..	..	..	..	..	222	..	..	..	222	133
Books and periodicals	..	..	33	..	..	6	..	..	..	39	34
Miscellaneous	..	..	62	..	..	17	..	..	..	79	71
Total ..	..	..	3,421	..	2,582	586	..	..	..	6,589	4,075
Supplies and services—Voted—											
Apparatus and materials	..	..	121	..	..	101	..	..	..	222	49
Miscellaneous	..	..	357	..	312	..	..	..	..	669	790
Total ..	..	..	478	..	312	101	..	..	..	891	839
Grand Total ..	..	..	1,28,135	..	11,658	29,029	..	..	..	1,68,822	1,28,470
	..	..	..	..	..	..	..	..	..	1,68,821	..
52. A. d. Investments in Government Commercial undertakings.	68	..	..	..	28,261	797	1,162	..	..	30,288	2,21,066
Deduct recoveries of investments in Government commercial undertakings ..	..	..	..	..	—22,608	— 439	—66,475	..	..	— 89,522	..
ABSTRACT.											
VIII. Forest—Receipts	..	..	..	..	..	..	..	..	..	58,94,247	51,28,434

(*a*) Differences due to rounding.

(*b*) Chief Conservator's office.

(*c*) Includes expenditure in Agency tracts.

Summary of revenue and expenditure for 1928-29—*cont.*

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.	Sixth Circle.	Engineering Branch.	Forest College.	Parlakimedi Maliahs.	1928-29.	1927-28.
8. *Expenditure.*										Rs.	Rs.
a. General Direction—Chief Conservator's office	..	..	..	..	..	..	..	..	..	1,21,815	1,24,300
b. Conservancy and Works	..	..	..	..	..	..	..	..	..	10,78,857	9,99,915
c. i. iii and iv.—District establishments including the Engineering Branch and Forest College	..	..	..	..	..	..	..	..	..	26,18,185	27,07,581
c. ii. Forest Research Officer	..	..	..	..	..	..	..	..	..	40,850	32,396
c. v. Chenchu Officer	..	..	..	..	..	..	..	..	..	26,177	27,848
e. Losses in Government Commercial undertakings	..	..	..	..	..	..	..	..	..	1,05,268	1,55,178
Expenditure in England	..	..	..	..	..	..	..	..	..	1,74,987	1,45,747
f. Loss by exchange	..	..	..	..	..	..	..	..	..	..	..
20. Interest—Interest on deposits from depreciation reserve of Government commercial undertakings	..	..	..	..	..	..	..	..	..	164	..
52. *A. Capital outlay on forests.*											
b. Conservancy and works	..	..	..	..	..	..	..	..	..	3,08,659	3,70,103
c. ii. Regeneration	..	..	..	..	..	..	..	..	..	1,68,821	1,28,470
d. Investments in Government Commercial undertakings	..	..	..	..	..	..	..	..	..	30,288	2,21,066
Total	..	..	..	..	..	..	..	..	..	46,74,071	49,12,604
Deduct recoveries of investments on Government commercial undertakings.	..	..	..	..	..	..	..	..	..	— 89,522	..
Grand Total	..	..	..	..	..	..	..	..	..	45,84,549	49,12,604

ANNUAL FORM No. 40.

Forest Department, Madras Presidency.

Outstandings and liabilities on account of contractors and disbursers for the year 1928-29.

ANNUAL FORM No. 40.

Forest Department, Madras Presidency.

Outstandings and liabilities on account of contractors and disbursers for the year 1928–29.

District.	Department debtor.			Department creditor.			Balance due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To department (outstandings).	By department (liabilities).
First Circle.		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
Direction	..	5,857 7 6	5,857 7 6	63 7 3	5,809 10 0	5,873 1 3	15 9 9	..
Ganjām	..	1,55,805 15 6	1,55,805 15 6	1,689 12 4	1,55,803 10 3	1,57,493 6 7	1,687 7 1	..
Vizagapatam	..	36,596 11 4	36,596 11 4	1,219 5 10	2,35,515 2 1	36,734 7 11	137 12 7	..
Lower Gōdāvari	..	76,594 11 10	76,594 11 10	628 9 2	77,044 10 5	77,673 3 7	1,078 7 9	..
Parlakimedi Maliahs	..	23,306 9 0	28,306 9 0	205 6 2	23,410 14 5	23,616 4 7	309 11 7	..
Golkonda Agency	..	12,832 2 2	12,832 2 2	734 0 10	12,225 0 0	12,959 0 10	126 14 8	..
Upper Gōdāvari	..	84,772 11 9	84,772 11 9	264 10 1	85,059 1 0	85,323 11 1	550 15 4	..
Guntur	..	52,082 12 5	52,082 12 5	189 0 8	51,965 13 7	52,154 14 3	72 1 10	..
Nellore	..	70,515 2 4	70,515 2 4	303 11 9	70,277 15 0	70,581 10 9	66 8 5	..
Total ..	..	5,18,364 3 10	5,18,364 3 10	5,298 0 1	5,17,111 12 9	5,22,409 12 10	4,045 9 0	..
Second Circle.								
Direction	..	1,851 0 4	1,851 0 4	19 1 2	1,854 3 6	1,873 4 8	22 4 4	..
Kurnool, East	..	60,947 15 8	60,947 15 8	360 8 7	61,006 12 0	61,367 4 7	419 4 11	..
Do. South	..	59,840 2 2	59,840 2 2	71 6 5	59,879 3 3	59,950 9 8	110 7 6	..
Do. West	..	80,853 0 8	80,853 0 8	1,218 7 4	80,596 14 1	81,815 5 5	962 4 9	..
Anantapur	..	54,126 10 7	54,126 10 7	211 6 7	54,084 2 0	54,295 8 7	168 14 0	..
Cuddapah, North	..	57,964 8 6	57,964 8 6	812 1 9	57,176 10 4	57,988 12 1	24 3 7	..
Do. South	..	63,944 6 4	63,944 6 4	172 10 5	63,821 5 0	63,993 15 5	49 9 1	..
Total ..	..	3,79,527 12 3	3,79,527 12 3	2,865 10 3	3,78,419 2 2	3,81,284 12 5	1,757 0 2	..

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Outstandings and liabilities on account of contractors and disbursers for the year 1928-29—*cont.*

District.	Department debtor.			Department creditor.			Balance due.	
	At commencement of year.	Recoveries in cash and value of supplies and work done during the year.	At close of year.	At commencement of year.	Payments made during year.	At close of year.	To department (outstandings).	By department (liabilities).
Sixth Circle.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Direction	..	6,173 7 6	6,173 7 6	78 10 7	6,371 13 0	6,450 7 7	277 0 1	..
Nilgiris	..	85,782 13 10	85,782 13 10	534 8 9	85,376 13 0	85,911 5 9	128 7 11	..
Wynaad	..	1,56,267 6 9	1,56,267 6 9	476 3 1	1,57,072 15 0	1,57,549 2 1	1,281 11 4	..
Mangalore, North	..	73,039 0 7	73,039 0 7	154 1 3	72,993 14 0	73,147 15 3	108 14 8	..
Do. South	..	1,26,164 8 2	1,26,164 8 2	543 7 4	1,25,760 9 4	1,26,304 0 8	139 8 6	..
Palghat	..	1,17,007 1 10	1,17,007 1 10	238 13 4	11,371 7 6	1,17,610 4 10	603 3 0	..
Nilambur	..	130 7 5	130 7 5	130 7 5	..	130 7 5	..	..
Total ..	..	5,64,564 14 1	5,64,564 14 1	2,156 3 9	5,64,947 7 10	5,67,103 11 7	2,538 13 6	..
Exploitation Division.								
Forest Engineer	..	88,679 5 7	88,679 5 7	425 7 3	88,327 9 5	88,753 0 8	73 11 1	
Logging Engineer	..	92,443 14 2	92,443 14 2	1,984 14 0	91,953 7 2	93,938 5 2	1,494 7 0	
Utilization Division	..	30,500 5 3	30,500 5 3	2,346 7 8	28,222 13 1	30,569 4 9	68 15 6	..
Sawmills and extraction Division.	..	1,76,018 9 6	1,76,018 9 6	—1,995 8 1	1,81,178 7 3	1,79,182 15 2	3,164 5 8	..
								..
Chief Forest Engineer ..	..	1,500 0 0	1,500 0 0	..	1,500 0 0	1,500 0 0	..	..
Chenat Nair	..	..	..	733 6 0	..	7 3 6 0	733 6 0	..
Total ..	..	3,89,142 2 6	3,89,142 2 6	3,494 10 10	3,91,182 4 11	3,94,676 15 9	5,534 13 3	..
Grand Total, Presidency ..	..	26,99,639 7 10	26,99,639 7 10	18,284 9 0	27,00,528 2 4	27,18,812 11 4	19,173 3 6	..

ANNUAL FORM No. 41.

Forest Department, Madras Presidency.

Revenue received and outstanding on account of revenue during the year 1928-29.

ANNUAL FORM No. 41.

Forest Department, Madras Presidency.

Revenue received and outstandings on account of revenue during the year 1928-29.

District.	Particulars.	Outstandings at commencement of the year.	Value of sales and other revenue during the year.	Total.	Amount realized during the year.	Balance due to the department at the end of the year.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
First Circle.						
Direction	Timber and other produce	..	37,001 0 0	37,001 0 0	37,001 0 0	..
Ganjam	Do.	6,914 14 10	3,89,053 8 11	3,95,968 7 9	3,73,394 0 0	22,574 7 9
Vizagapatam	Do.	3,271 7 0	55,490 9 0	58,762 0 0	56,206 0 0	2,556 0 0
Godavari, Upper	Do.	13,093 5 0	1,43,053 2 0	1,56,146 7 0	1,53,413 0 0	2,733 7 0
Do. Lower	Do.	3,152 12 0	2,61,692 10 11	2,64,845 6 11	2,57,614 0 0	7,231 6 11
Guntur	Do.	24,801 11 9	1,46,841 0 3	1,71,642 12 0	1,54,242 0 0	17,400 12 0
Nellore	Do.	1,996 0 10	99,518 15 2	1,01,515 0 0	1,01,200 0 0	315 0 0
	Total ..	53,230 3 5	11,32,650 14 3	11,85,881 1 8	11,33,070 0 0	(a) 52,811 1 8
Second Circle.						
Direction	Timber and other forest produce ..	..	1,342 11 4	1,342 11 4	1,342 11 4	..
Anantapur	Do.	3,35,614 7 3	2,24,974 15 6	5,60,589 6 9	3,73,223 8 6	1,87,365 14 3
Kurnool, East	Do.	4,639 14 7	65,084 13 2	69,724 11 9	62,707 8 2 * 80 10 7	6,936 9 0
Do. South	Do.	3,210 7 2	1,26,336 8 3	1,29,546 15 5	1,28,528 15 5	1,018 0 0
Do. West	Do.	32,705 13 9	1,85,770 2 7	2,18,476 0 4	1,79,287 5 11	39,188 10 5
Cuddapah, North	Do.	7,060 12 0	90,616 3 10	97,676 15 10	84,513 13 2	13,163 2 8
Do. South	Do.	54,989 3 11	1,61,443 0 8	2,16,432 10 7	1,17,300 15 6 * 932 8 0	98,199 3 1
	Total ..	4,38,220 10 8	8,55,568 13 4	12,93,789 8 0	9,46,904 14 0 * 1,013 2 7	† 3,45,871 7 5

Fourth Circle.						
Direction	Timber and other forest produce ..	..	2,070 13 0	2,070 13 0	2,070 13 0	..
	Do.	752 8 0	89,894 6 2	90,646 14 2	90,646 14 2	..
Chittoor	Do.	973 14 0	4,97,763 0 1	4,98,736 14 1	4,97,743 2 1	993 12 0
Vellore	Do.	..	3,38,702 1 11	3,38,702 1 11	3,38,702 1 11	..
Salem, North	Do.	702 6 6	2,21,257 10 0	2,21,960 0 6	2,21,847 14 6	112 2 0
Do. Central	Do.	..	1,40,871 0 9	1,40,871 0 9	1,40,571 0 9	300 6 6
Do. South	Total ..	2,428 12 6	12,90,558 15 11	12,92,987 12 5	12,91,581 14 5	1,405 14 0
Fifth Circle.						
Direction	Timber and other forest produce ..	..	38 0 6	38 0 6	38 0 6	..
Kollegal	Do.	2,830 8 0	2,11,197 12 3	2,14,028 4 3	2,04,460 12 3	(*a*) 9,567 8 0
Coimbatore, North	Do.	13,917 14 8	4,14,285 14 10	4,28,203 13 6	3,82,276 7 6	* 45,927 6 0
Do. South	Do.	15,160 12 0	1,08,079 12 8	1,23,240 8 8	1,15,496 2 8	(*b*) 7,744 6 0
Madura	Do.	77,356 9 10	2,48,961 3 11	3,26,317 13 9	2,12,862 14 10	(*c*) 1,13,454 14 11
Tinnevelly	Do.	1,159 10 8	1,56,727 14 0	1,57,887 8 8	1,56,528 4 8	(*d*) 1,359 4 0
Tanjore	Do.	..	13,536 5 10	13,536 5 10	13,536 5 10	..
	Total ..	1,10,425 7 2	11,52,827 0 0	12,63,252 7 2	10,85,199 0 3	(*f*) 1,78,053 6 11
South Coimbatore	Timber, etc. (commercial)	8,892 5 8	1,98,936 12 11	2,07,829 2 7	1,96,069 13 5	(*e*) 11,759 5 2
	Total ..	1,19,317 12 10	13,51,163 12 11	14,71,081 9 9	12,81,268 13 8	1,89,812 12 1

Note for First Circle.
(*a*) Of this Rs. 16,749 fell due within the year.

Note for Second Circle.
* Written off the accounts.
† Out of this Rs. 2,18,943-12-3 falls due after 31st March 1929.

Note for Fifth Circle.
(*a*) Due only in 1929-30.
* Of this, Rs. 16,221-6-0 represents value of deficit quantity of sandalwood and the balance is due only in 1929-30.
(*b*) Of this, Rs. 1,177-8-6 only fell due within 1928-29.
(*c*) Of this, Rs. 10,990 relates to the second appeal pending in the High Court. Rupees 569-7-0 relates to defalcation and Rs. 1,388-4-11 only was due within the year.
(*d*) Of this, Rs. 204-4-0 was due within the year.
(*f*) Excludes Rs. 90,260 shown as outstanding in the Forest Utilization Officer's accounts relating to South Coimbatore.
(*e*) Of this, Rs. 8,843-13-2 only fell due within the year.

Revenue received and outstandings on account of revenue during the year 1928-29—*cont.*

District.	Particulars.	Outstandings at commencement of the year.	Value of sales and other revenue during the year.	Total.	Amount realized during the year.	Balance due to the department at the end of the year.
Sixth Circle.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Mangalore, North	Timber and other forest produce ..	24,662 2 11	1,10,808 12 10	1,35,470 15 9	1,00,794 0 0	34,676 15 9
Do. South	Do.	37,583 5 0	1,92,299 9 1	2,29,882 14 1	1,49,479 0 0	78,141 14 1
					(*b*) 2,262 0 0	
Wynad	Do.	65,643 12 0	3,57,762 2 3	4,23,405 14 3	3,38,804 0 0	73,207 14 3
					(*b*) 11,394 0 0	
The Nilgiris	Do.	26,779 0 10	1,05,704 5 11	1,32,483 6 9	1,15,238 0 0	17,245 6 9
Palghat	Do.	34,185 10 0	1,50,753 2 0	1,84,938 12 0	1,05,778 0 0	79,160 12 0
Nilambur	Do.	..	(*a*) 3,88,117 0 0	3,88,117 0 0	3,88,117 0 0	..
Direction	Miscellaneous revenue	..	679 0 0	679 0 0	679 0 0	..
	Total ..	1,88,853 14 9	13,06,124 0 1	14,94,977 14 10	12,12,545 0 0	(*c*) 2,82,432 14 10
Parlakimedi Maliahs	..	..	54,436 5 0	54,436 5 0	54,436 5 0	..
	Total ..	8,02,051 6 2	59,91,102 13 6	67,93,154 3 8	59,20,820 1 8	8,72,334 2 0
Add—						
Agency (other than Parlakimedi Maliahs)	..	..	..	..	13,301 0 0	..
Working Plan Circle	..	..	..	..	968 0 0	..
Forest College	..	..	..	..	55,599 0 0	..
Chief Conservator	..	..	..	..	4,444 0 0	..
	Total ..	..	..	..	59,95,132 1 8	..

Deduct—Refunds	..	..	..	..	26,832 0 0	..
					59,68,300 1 8	
					(*a*) +10,204 0 0	
					(*b*) — 81,918 0 0	
					(*c*) — 1,326 0 0	
					(*d*) — 1,013 2 7	
	Grand total ..				58,94,246 15 1	

Note for Sixth Circle.

(*a*) Nilambur division is a commercial concern. Represents all items adjusted to VIII—Forest. Receipts including profits from Government commercial undertakings, recoveries of investments in Government commercial undertakings and recoveries of indirect charges from Government commercial undertakings.

(*b*) Relates to adjustments by the Forest Utilization Officer on account of advance payments during the previous year, etc.

(*c*) All figures in this statement include Forest Utilization Officer's transactions.

(*a*) Added to tally with the circle total given in Form No. 39 for Fifth Circle excluding commercial concerns.

(*b*) Excess credit taken in Fifth and Sixth Circles on account of transactions, carried out by special exploitation agencies. (Forest Engineering Branch).

(*c*) Revenue relating to the Nilgiris credited in Fifth Circle and now adjusted in the Sixth Circle.

(*d*) Written off the accounts in the Second Circle.

ANNUAL FORM No. 42.

Forest Department, Madras Presidency.

Financial results for the year 1928-29.

District.	Timber and other produce removed from the forests by Government agency.		Other revenue.		Formation, protection and improvement of forests.	Totals.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
First Circle.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam ..	80,878	50,017	1,05,908	1,08,646	43,835	1,86,781 (a) 44,929 (b) 1,41,985 (c) 450	2,02,498
Vizagapatam ..	7,392	3,654	49,845	41,583	4,791	57,237	50,028
Gōdāvari, U per ..	1,03,081	38,614	50,404	50,526	31,777	1,53,485	1,20,987
Do. Lower ..	2,265	4,340	2,55,775	86,534	24,756	2,58,040	1,15,630
Guntūr	1,254	831	1,53,373	78,189	6,708	1,54,627	85,728
Nellore	8,127	22,481	1,29,852	62,682	9,794	1,37,979	94,957
Total ..	2,02,997	1,19,937	7,45,152	4,28,230	1,21,661	9,48,149 (a) 44,929 (b) 1,41,985 (c) 450 (d) 60 (g) 12,898	6,69,829 (f)— 81 (g)13,019
Net ..	..	..	..	..	..	11,48,471 (e) — 2,503	(h) 6,82,767
Second Circle.							
Anantapur	157	1	3,72,567	59,034	18,664	3,72,724	77,699
Kurnool, East ..	8,537	2,888	54,001	54,523	20,456	62,538	77,867
Do. South ..	24,716	2,321	1,03,472	61,337	21,680	1,28,188	85,338
Do. West ..	17,973	4,278	1,61,261	70,601	23,569	1,79,234	98,448
Cuddapah, North ..	660	141	83,806	65,412	21,087	84,465	86,640
Do. South ..	2,417	424	1,14,971	68,250	22,476	1,17,388	91,150
Total ..	54,460	10,053	8,90,078	3,79,157	1,27,932	9,44,538	5,17,142

Note for the First Circle.—
(a) Profits from Government commercial undertaking.
(b) Recoveries of investment on Government Commercial undertakings.
(c) Recoveries of indirect charges from Government Commercial undertakings.
(d) Relates to Parlakimedi Maliahs.
(e) Refunds.
(f) Suspense—Works advances—Voted.
(g) Relates to revenue in Golgonda Agency.
(h) Excludes Rs. 68 being investments on Government Commercial undertakings.

Financial results for the year 1928-29—*cont.*

District.	Timber and other produce removed from the forests by Government agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
Fourth Circle.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Chittoor	5,963	2,108	84,684	69,491	20,910	90,647	92,508
Vellore	1,82,804	13,871	3,14,938	1,26,780	23,531	4,97,742	1,64,182
North Salem ..	2,52,239	31,410	86,499	68,854	27,072	3,38,738	1,27,336
Central Do. ..	28,219	4,704	1,93,652	84,927	9,027	2,21,871	98,658
South Do. ..	19,634	3,241	1,20,937	63,784	14,325	1,40,571	81,350
Total ..	4,88,859	55,334	8,00,710	4,13,835	94,865	(*a*) 12,89,569 (*b*) — 12,666	5,64,034 (*c*) — 9,241 (*d*) + 240
Net ..	..	..	..	..	..	..	5,55,033
Fifth Circle.							
Kollegal ..	1,23,069	10,397	81,100	57,556	25,573	2,04,169	93,526
Coimbatore, North ..	2,40,725	24,291	1,38,636	70,328	23,440	3,79,361	1,11,059
Do. South ..	17,702	31,198	1,07,805	48,665	42,655	1,25,507	1,22,518
Madura ..	6,989	2,874	2,01,996	91,442	32,929	2,08,985	1,27,245
Tinnevelly ..	15,387	19,106	1,39,566	67,166	16,699	1,54,953	1,02,971
Tanjore ..	30	..	12,002	1,303	468	12,032	1,771
Total ..	4,03,902	87,866	6,81,105	3,36,460	1,41,764	10,85,007	5,6,090 (*a*) + 12,776 (*b*) — 362
Sixth Circle.							
Mangalore, North ..	43,413	47,719	57,379	33,264	21,906	1,00,792	1,02,939
Do. South ..	22,600	1,08,989	58,521	29,274	24,437	81,121	1,62,630
Wynaad	1,37,303	1,99,124	43,195	26,964	46,121	1,80,498	2,72,209
The Nilgiris	77,446	82,930	37,776	36,632	23,944	1,15,222	1,43,506
Nilambur	3,64,435	6,380	19,848	13,295	59,462	3,85,283	79,137
Palghat	10,356	67,929	94,849	44,981	20,640	1,05,205	1,33,550
Inspector of Live-stock	..	(*a*) 7,713	..	..	..	...	7,713
Direction	..	..	679	..	..	679	..
Total ..	6,55,553	5,20,764	3,12,247	1,84,410	1,96,510	(*b*) 9,67,800 (*c*) — 1,279	9,01,684 (*d*) + 66

Note for the Fourth Circle—

(*a*) Excludes Rs. 2,048 sandalwood revenue relating to other circles. (*b*) Refunds.

(*c*) Included under "Research." (*d*) Added with reference to the Accountant General's actuals.

Note for the Fifth Circle—

(*a*) Added with reference to the figures given in Form No. 39.

(*b*) Deducted with reference to Accountant-General's actuals.

Note for the Sixth Circle—

(*a*) Rupees 289 to be shared by North Mangalore; Rs. 723 by South Mangalore; Rs. 1,726 by Wynaad; Rs. 1,123 by the Nilgiris; Rs. 1,925 by Nilambur and Rs. 1,927 by other circles.

	Rs.
Deduct refunds	1,279
Net ..	9,66,521

(*b*) Includes Rs. 1,326 credited in V Circle on account of the Nilgiri Division Sandalwood.

For Mangalore South and Wynaad the figures of revenue collected and expenditure incurred by Forest Engineer and Forest Ulitization Officer for Saw Mill and Depots in their charges are excluded. These figures are:—

	Revenue realised.	Expenditure.	
	Rs.	Rs.	
For Wynaad	1,58,306	55,972	Thus the real gross revenue and expenditure for whole circle are Rs. 11,93,778 and Rs. 10,07,257 respectively.
For Mangalore South ..	68,360	50,341	

(*c*) Refunds. (*d*) Added with reference to Accountant-General's actuals.

Financial results for the year 1928-29—*cont.*

District.	Timber and other produce removed from the forests by Government agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
Forest Engineering Branch.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Forest Engineer, Madras	1,300	1,34,924	1,196	..	..	2,496	1,34,924
Logging Engineer, Ootacamund ..	..	1,16,001	421	..	..	421	1,16,001
Utilization Division, Madras	2,94,926	85,870	4,170	..	..	2,99,096	85,870
Saw Mills and Extraction Division, Olavakot	1,016	1,85,990	19,600	..	..	20,616	1,85,990
Chief Forest Engineer, Madras	..	77,210	91	..	..	91	77,210
Forest Economist, Madras	4,127	33,115	..	..	..	4,127	33,115
Chenat Nair Exploitation Division, Olavakot	..	..	32,071	..	..	32,071	..
Total ..	3,01,369	6,33,110	57,549	..	..	3,58,918	6,33,110
Deduct refunds ..	..	..	..	..	..	66	..
Net ..	..	..	..	..	..	3,58,852 (*a*) — 26	..
Parlakimedi Maliahs.	5,412	5,145	49,024	13,162	18,072	54,436	36,379 (*b*) + 582
Total ..	..	..	..	..	..	58,48,647	39,05,267
Deduct refunds ..	..	..	..	..	..	16,448	..
						58,32,199	39,05,267
Add—							
Loss in Government Commercial undertakings	..	..	..	..	..	..	1,05,268
Forest College ..	..	..	..	..	..	54,847	1,21,274
Working Plans Circle	..	..	..	..	..	968	1,28,982
Chief Conservator.	..	..	..	..	..	4,444	1,40,379
Forest Research Officer	..	..	..	..	..	..	40,850
Chenchu Officer ..	..	..	..	..	..	..	26,612
Expenditure in England ..	..	..	..	..	..	..	1,74,987

(*a*) Deducted with reference to Accountant General's actuals.
(*b*) Added with reference to Accountant-General's actuals.

Financial results for the year 1928-29—*cont.*

District.	Timber and other produce removed from the forests by Government agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
Add—cont.						Rs.	Rs.
Interest on deposits from depreciation reserve of Government commercial undertakings							
Investments in Government commercial undertakings	..	..	..	..	..	..	164
Deduct recoveries of investments on Government commercial undertakings	..	..	..	..	..	..	30,288
	..	..	..	..	..	..	— 89,522
						(*a*) —259 (*b*) 2,048	
Grand Total ..	..	..	..	..	..	58,94,257	45,84,549

(*a*) Adjusted with reference to the Accountant-General's actuals and Form No. 39.
(*b*) Includes Rs. 2,048 being sandalwood revenue relating to Tinnevelly (Rs. 1,155), South Cuddapah (Rs. 848) and South Kurnool (Rs. 45).

ANNUAL FORM No. 43.

Forest Department, Madras Presidency.

PART I.

Statement of live-stock (1) elephants and (2) other live-stock during 1928–29.

District.	On hand at the commencement of the year.		Number received during the year.	Number disposed of during the year.	On hand at the end of the year.		Total expenditure on maintenance during the year.
	Number.	Value.			Number.	Value.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ELEPHANTS.		RS.				RS.	RS. A. P.
First Circle.							
Godavari, Upper..	1	2,500	1	..	2	6,734	1,757 12 3
Do. Lower..	1	2,500	..	..	1	2,500	.. (*a*)
Total ..	2	5,000	1	..	3	9,234	1,757 12 3
Second Circle							
Kurnool, West ..	2	4,000	..	..	2	4,000	741 8 0
	..	..	..	..	..	..	(*b*) 875 1 0
Total ..	2	4,000	..	..	2	4,000	1,616 9 0
Fourth Circle—Nil.							
Fifth Circle.							
Coimbatore, South.	25	69,300	6	10	21	62,100	27,613 2 10
Sixth Circle.							
Mangalore, North.	4	8,900	2	1	5	9,350	5,098 4 8
Do. South	4	12,500	7	1	10	23,650	13,904 3 6
Wynaad	32	70,250	17	19	30	57,950	27,814 2 11
Nilambur	34	91,800	3	8	29	72,850	37,596 1 1
Nilgiris	9	20,300	13	4	18	40,200	18,034 8 6
Total ..	83	2,03,750	42	33	92	2,04,000	1,02,447 4 8
Grand Total, Presidency.	112	2,82,050	49	43	118	2,79,334	1,33,434 12 9
(2) OTHER LIVESTOCK.							
First Circle.							
Ganjam	15 buffaloes.	960	..	15	..	..	426 12 0
Nellore	1 buffalo.	40	..	..	1	40	27 8 0
Total ..	16	1,000	..	15	1	40	454 4 0
Second Circle.							
Anantapur ..	2 buffaloes.	75	..	..	2	75	20 0 0
Kurnool, South ..	2 buffaloes	85	..	(*c*) 2	..	..	7 2 0
Total ..	4	160	..	2	2	75	27 2 0

(*a*) Cost incurred by the Revenue Department.
(*b*) Pay of establishment.
(*c*) Sold for Rupees eighty-two.

Statement of live-stock (1) elephants and (2) other live-stock during 1928-29—*cont.*

District.	On hand at the commencement of the year.		Number received during the year.	Number disposed of during the year.	On hand at the end of the year.		Total expenditure on maintenance during the year.
	Number.	Value.			Number.	Value.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(2) OTHER LIVE-STOCK—*cont.*		RS.				RS.	RS. A. P.
Fourth Circle.							
Chittoor	1 bullock.	40	..	..	1	35	20 0 0
Fifth Circle—Nil.							
Sixth Circle.							
Mangalore, South.	12	1,547	..	..	12	1,547	4,913 0 0
Wynaad	10	1,676	4	5	9	916	3,153 14 0
Nilambur ..	26	1,995	..	4	22	1,670	10,357 11 8
Nilgiris	6	485	..	..	6	465	2,130 15 6
Total ..	54 (*a*)	5,703	4 (*b*)	9 (*c*)	49 (*d*)	4,598	21,055 9 2
Grand Total—Presidency.	75	6,903	4	26	53	4,748	21,556 15 2

(*a*) Twelve bullocks and forty-two buffaloes.
(*b*) Four asses.
(*c*) Three bulls and three buffaloes were sold and one bull and two buffaloes died.
(*d*) Eight bulls, thirty-seven buffaloes and four asses.

PART II.

Statement of elephants gone off the list during the year 1928-29.

District. (1)	Names. (2)	When purchased or otherwise obtained by Government. (3)	Age. (4)	How disposed of. (5)
		First Circle—Nil.	YRS.	
		Second Circle—Nil.		
		Fourth Circle—Nil.		
		Fifth Circle.		
South Coimbatore.	Kalyani ..	North Malabar, 23rd August 1926.	31	Sold in June 1928.
	Balam ..	Captured on 30th September 1926.	15	Died on 20th April 1928.
	Gowri	Do. 9th June 1927 ..	12-13	Handed over to the Raja of Kollengode on 10th July 1928.
	Radha	Do. 11th June 1927 ..	25	Died on 15th April 1928.
	Chathu ..	Do. 2nd November 1927.	4	Sold on 17th June 1928.
	Gopalan ..	Do. 23rd August 1928 ..	.5½	Handed over to the Raja of Kollengode on 5th November 1928.
	Sarada ..	Do. do. ..	9	Sold on 13th January 1929.
	Ramachandran.	Do. 27th September 1928.	4	Do.
	Indran ..	Do. 14th July 1928 ..	5	Handed over to the Raja of Kollengode on 5th November 1928.
	Menaka ..	Do. 1st November 1928.	30	Died on 8th January 1929.
		Sixth Circle.		
Mangalore, North.	Leela	Born of Chamundy on 14th December 1926.	2	Sold.
Mangalore, South.	Emily ..	Captured on 22nd June 1899 ..	48	Transferred to North Mangalore.
Wynaad ..	Isabella ..	Do. 12th July 1898 ..	47	Transferred to South Mangalore.
	Elia	Do. 15th March 1926 ..	31	Sold.
	Ross	Born to Elsie on 9th May 1926..	1½	Do.
	Mathima ..	Transferred from Coorg in October 1926.	23	Transferred to South Mangalore.
	Lalitha ..	Captured on 1st June 1926 ..	41	Transferred to Nilgiris.
	Maharani ..	Do. 27th May 1926 ..	31	Transferred to South Mangalore.
	Melathi ..	Do. do. ..	21	Transferred to Nilgiris.
	Sivaji	Do. 27th April 1927 ..	6	Bolted and written off in Chief Conservator's L. Dis. No. 5433/28, dated 24th October 1928.
	Velayudhan ..	Do. 25th April 1926 ..	9	Sold.
	Ganapathi ..	Do. 14th January 1926.	10	Do.
	Malini ..	Do. 14th February 1928.	5	Do.
	Amir	Do. 11th April 1928 ..	3	Do.
	Raja	Do. 5th May 1928 ..	3 months	Died and written off.
	Subadra ..	Do. 7th May 1928 ..	2½	Sold.
	Sakuntala ..	Do. 24th May 1928 ..	3	Do.
	Kaveri ..	Do. 3rd June 1928 ..	30	Died and written off.
	Seetha	Do. do. ..	2½	Sold.
	Padmini ..	Do do. ..	3	Do.
	Nizam ..	Do. 12th February 1929.	4 months.	Died and written off.

Statement of elephants gone off the list during the year 1928-29—*cont.*

Districts. (1)	Names. (2)	When purchased or otherwise obtained by Government. (3)	Age. (4)	How disposed of. (5)
		Sixth Circle—cont.	YRS.	
Nilambur.	Sutlez	Captured on 27th February 1902.	37	Transferred to South Mangalore.
	Chanbagam ..	Do 26th September 1918.	24	Do.
	Tyno	Do. 5th July 1924 ..	27	Do.
	Madhavan ..	Do. 27th February 1913.	27	Transferred to the Nilgiris.
	Bomman ..	Do. 22nd April 1923 ..	40	Do.
	Bahadur Shah.	Do. 1st January 1928 ..	2½	Sold.
	Khasthuri Bai.	Do. 28th January 1928 ..	4	Do.
	Roza	Born of Ramzan Bi on 24th February 1929.	20 days.	Died on 14th March 1929.
The Nilgiris.	Savithri ..	Captured on 5th April 1928 ..	3	Sold.
	Sakuntala ..	Do. 10th December 1928.	3	Do.
	Mavi	Do. 17th January 1929..	2½	Do.
	Asoka	Do. 4th November 1927.	6	Do.

Annual Form No. 44.

Forest Department, Madras Presidency.

Abstract showing the value of stores, tools and plant for 1928-29.

District.	Buildings.				Stores.				Total.				Difference in value.	
	On hand at the commencement of the year.		On hand at the end of the year.		On hand at the commencement of the year.		On hand at the end of the year.		On hand at the commencement of the year.		On hand at the end of the year.		In favour of the year.	Against the year.
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Value.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
First Circle.		Rs.		Rs.		Rs.		Rs.		Rs.		Rs.	Rs.	Rs.
Direction	..	..	..	..	300	5,206	299	5,004	300	5,206	299	5,004	..	202
Ganjam	144	2,00,604	143	2,03,715	6,504	1,74,065	6,124	1,71,716	6,648	3,74,669	6,267	3,75,431	762	..
Vizagapatam	46	13,456	40	9,445	1,893	8,080	1,759	8,854	1,939	21,536	1,799	18,299	..	3,237
Godavari, Upper ..	114	58,746	85	69,088	6,167	18,962	4,205	19,280	6,281	77,708	4,290	88,368	10,660	..
Do. Lower ..	178	92,739	168	74,280	8,211	11,256	8,162	11,237	8,389	1,03,995	8,330	85,517	..	18,478
Guntur	32	50,860	50	46,143	5,585	14,914	6,556	14,299	5,617	65,774	6,606	60,442	..	5,332
Nellore	69	32,466	68	31,961	60,839	34,497	60,705	43,156	60,908	66,963	60,773	75,117	8,154	..
Total ..	583	4,48,871	554	4,34,632	89,499	2,66,980	87,810	2,73,546	90,082	7,15,851	88,364	7,08,178	..	7,673
Second Circle.														
Direction	..	..	..	..	370	6,438	380	6,445	370	6,438	380	6,445	7	..
Anantapur	26	40,289	30	42,063	5,442	14,231	4,810	12,864	5,468	54,520	4,840	54,927	407	..
Kurnool, East ..	39	72,271	67	76,217	4,796	13,567	3,943	13,104	4,885	85,838	4,010	89,321	3,483	..
Do. South ..	64	(a)40,339	64	40,339	2,494	(a)16,660	2,443	16,610	2,558	56,999	2,507	56,949	..	50
Do. West ..	88	1,17,678	95	1,35,902	(b) 7,997	(b)26,366	7,588	25,653	8,085	1,44,044	7,683	1,61,555	17,511	..
Cuddapah, North ..	(c) 91	(c) 36,434	79	35,476	3,773	9,393	3,726	9,491	3,864	45,827	3,805	44,967	..	860
Do. South ..	83	80,309	80	95,030	3,364	12,884	3,406	13,260	3,447	93,193	3,486	1,08,290	15,097	..
Total ..	441	3,87,320	415	4,25,027	28,236	99,539	26,296	97,427	28,677	4,86,859	26,711	5,22,454	36,505	910

Fourth Circle.														
Direction	..	..	..	..	216	8,175	217½	5,756	216	3,175	(c) 217½	5,756	2,581	..
Chittoor	(a) 71	(a)63,549 (b)	71	63,644	(a) 4,801	(a)13,509	4,337	12,038	4,872	77,058	4,408	75,682	..	1,376
Vellore	103	1,34,990	101	1,34,434	7,832	(b)26,462	7,321	26,487	7,935	1,61,452	7,422	1,60,921	..	531
Salem, North ..	43	46,529	45	49,249	3,415	25,088	3,893	25,407	3,458	71,617	3,938	74,656	3,039	..
Do. Central ..	(a) 98	(b)69,221	91	64,913	4,737	(a)12,148	4,518	12,368	4,835	81,369	4,609	77,281	..	4,088
Do. South ..	55	43,358	57	53,174	3,582	9,792	3,708	12,076	3,637	53,150	3,765	65,250	12,100	..
Vernacular Training School.	..	..	..	..	614	1,392	(d) ..	(d) ..	614	1,392	(d)..	(d)..	..	1,392
Total ..	370	3,57,647	365	3,65,414	25,197	91,566	23,994½	94,132	25,567	4,49,213	24,359½	4,59,545	10,333	..
Fifth Circle.														
Direction	1	36	..	..	230	2,599	230	2,558	231	2,635	230	2,558	..	77
Kollegal	56	45,837	58	47,859	2,708	8,210	2,335	8,632	2,764	54,047	2,393	56,491	2,444	..
Coimbatore, North ..	80	65,577	79	77,172	1,633	8,697	1,941	9,218	1,713	74,274	2,020	86,390	12,116	..
Do. South ..	63	57,213	81	1,29,619	3,977	14,074	2,345	24,547	4,040	71,287	2,426	1,54,166	82,879	..
Madura	130	1,15,631	130	1,20,264	3,922	8,265	3,885	8,747	4,052	1,23,896	4,015	1,29,011	5,115	..
Tinnevelly	128	73,946	132	75,883	3,335	8,172	3,420	8,199	3,463	82,118	3,552	84,082	1,964	..
Vernacular Training School.	..	..	..	..	629	488	520	388	629	488	520	388	..	100
Total ..	458	3,58,240	480	4,50,797	16,434	50,505	14,676	62,289	16,892	4,08,745	15,156	5,13,086	1,04,341	..
Sixth Circle.														
Direction	..	..	..	..	(a) 468	(a) 5,096	429	6,595	468	5,096	429	6,595	1,499	..
Mangalore, North ..	80	50,082	86	81,307	1,013	6,974	1,482	12,102	1,093	57,056	1,568	93,409	36,353	..
Do. South ..	64	43,633	39	36,351	1,468	11,155	1,486	14,665	1,532	54,788	1,525	51,016	..	3,772
Wynaad	106	1,06,008	106	1,24,161	2,983	19,220	3,438	20,030	3,089	1,25,228	3,544	1,44,191	18,963	..
Nilambur	36	1,19,074	36	1,19,229	1,780	10,289	1,846	11,800	1,816	1,29,363	1,882	1,31,029	1,666	..
The Nilgiris	84	78,974	92	1,45,714	2,048	12,416	1,710	13,695	2,132	91,390	1,802	1,59,409	68,019	..
Palghat	70	95,570	57	1,42,016	1,601	8,304	1,591	10,148	1,671	1,03,874	1,648	1,52,164	48,290	..
Total ..	440	4,93,341	416	6,48,778	(a)11,361	(a)73,454	11,982	89,035	11,801	5,66,795	12,398	7,37,813	1,71,018	..

Note for First Circle. Column (2) + Rs. 20 ; column (3) + Rs. 1,26,092 ; column (4) + Rs. 18 ; column (5) + Rs. 1,15,763 ; column (7) + Rs. 1,56,932 and column (9) + Rs. 1,50,965.
These figures relate to Russellkonda saw mill and are added to Ganjam figures as per Chief Conservator of Forests Ref. No. 5252-C-2/29-2, dated 24th August 1929.

Note for Second Circle.—(a), (b) and (c) These are reported to be the correct figures.

Note for Fourth Circle.
(a) Furnished by District Forest Officers as correct figures.
(b) Difference as compared with the closing balances of 1927-28 is due to revaluation of store articles as per G.O. No. 1170, Development, dated 30th July 1927.
(c) Half represents one-half of a wooden tray.
(d) All the store articles in the Vernacular Training School were transferred to the Fifth Circle.

Note for Sixth Circle.—(a) The difference is due to the revised figures of the Inspector of Live-stock included under direction.

Abstract showing the value of stores, tools and plant for 1928-29—*cont.*

Name of division.	Description of stock.	On hand at the commencement of the year.		On hand at the end of the year.		Difference in value.	
		Number.	Value.	Number.	Value.	In favour of the year.	Against the year.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Rs. A. P.		Rs. A. P.	Rs. A. P.	Rs. A. P.
Forest Engineer's division, Madras.	Scientific and mathematical instruments.	121	1,039 8 9	90	957 11 7	..	81 13 2
	Telephone tools and machinery ..	53	9,401 12 10	..	..	..	9,401 12 10 †
	Other stores	515	2,389 1 0	613	1,250 12 6	..	1,138 4 6
Forest Economist, Madras ..	Scientific instruments and tools ..	18	713 5 4	18	677 5 6	..	35 15 10
Chief Forest Engineer's office.	Survey instruments	..	1,934 6 4	..	1,837 4 10	..	97 1 6
Logging Engineer's division.	Survey instruments	..	2,554 14 4	..	4,515 3 0	1,960 4 8	..
	Other stores	..	206 0 0	..	401 14 0	195 14 0	..
	Buildings *	..	1,522 0 0	..	2,402 7 0	880 7 0	..
Forest Engineer in charge, Saw Mills and Extraction.	Survey instruments	..	49,529 13 8	..	44,138 8 4	..	5,391 5 4
	Other stores..	..	12,702 3 1	..	30,218 10 0	17,516 6 11	..
Forest Utilization Officer's division.	Survey instruments	..	54 13 0	..	35 2 8	..	19 10 4
	Other stores..	..	1,761 13 7	..	1,635 5 8	..	126 7 11
	Buildings *	..	6,089 5 3	..	7,357 0 9	1,267 11 6	..
	Total ..	..	89,899 1 2	..	95,427 5 10	5,528 4 8	..

* Value of buildings not shown in the previous return.

† Transferred to the district.

Abstract showing the value of stores, fools and plant for 1928-29—*cont.*

District.	Buildings.				Stores.				Total.				Difference in value.	
	On hand at the commencement of the year.		On hand at the end of the year.		On hand at the commencement of the year.		On hand at the end of the year.		On hand at the commencement of the year.		On hand at the end of the year.		In favour of the year.	Against the year.
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.	Value.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
		Rs.		Rs.		Rs.		Rs.		Rs.		Rs.	Rs.	
Forest College ..	..	..	..	..	..	82,704	..	83,790	..	82,704	..	83,790	1,086	..
Parlakimedi Maliahs.	..	..	..	..	912	5,088	966	6,246	912	5,088	966	6,246	1,158	..
Grand Total, Presidency.	..	20,45,419	..	23,24,691	..	7,59,736	..	8,01,892	..	28,05,154	..	31,26,583	3,21,386	..

-12 FEB. 1930

ADMINISTRATION REPORT

OF THE

FOREST DEPARTMENT

OF THE

MADRAS PRESIDENCY

FOR THE

YEAR ENDING 31st MARCH 1929

VOL. II—1928-29

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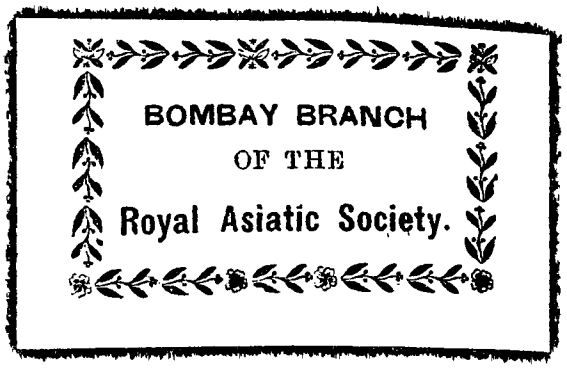
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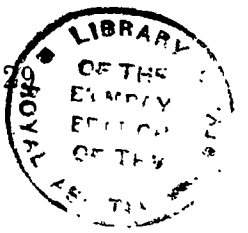
ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1929



FIRST CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. Alteration in Area.

1. (i) *Reserved forests.*—The total area of reserved forests decreased from 4,065 square miles to 4,059 square miles chiefly due to the disreservation of Interu reserved forest (a Ryots' forest) in Guntur and to the adoption of the correct area of Chintalapudi reserve in *Lower Godavari* division.

In *Vizagapatam* an area of 376 acres (Marripakala Teak Block) was newly constituted reserved forest during the year and in *Nellore* a portion of the area (1,171 acres) of Kothur reserve of *North Cuddapah* division transferred to this circle has been included.

(ii) *Reserved land.*—There was an increase of 11 square miles due to the notification, under section 4 of the Forest Act, of lands taken up for reservation in the Rampa Agency in *Lower Godavari* division.

2. Forest Settlement.

2. The settlement of the Marripakala Teak Block (376 acres) in *Vizagapatam* was concluded and the area was notified under section 16.

3. Demarcation.

3. There was an expenditure of Rs. 3,528 in connexion with the demarcation of blocks proposed for reservation in—

	MILES.
Ganjam (Balliguda Agency)	28
Upper Godavari	75
Lower Godavari (Rampa Agency)	73

The re-clearing of boundaries was as usual done by the subordinates free of cost and as part of the scheme for fire-protection operations.

Seventeen miles of frontier boundaries were inspected in *Upper Godavari*.

4. Forest Surveys.

4. (*a*) *By the Madras Survey Party.*—The Madras Survey Party continued to send sketches of the external boundaries of the reserves named in the margin in Gokavaram, Peddapur and Rajahmundry ranges of the *Lower Godavari* division, which were promptly verified.

Name of reserve.	
Gokavaram Range.	Veerabhadrapuram.
	Sudikonda.
	Tirumalayapalem.
	Molleru.
	Mallavaram.
	Doramamidi.
	Singampalli.
Peddapur Range.	Sarlanka.
	Anantaram.
	Vuligogula.
	Lingamparthi.
	Annavaram.
	Raghavapatnam.
	Aminbada.
	Jaddangi.
Rajahmundry Range.	Devancheruvu.

The discrepancy in respect of the external boundary of Upputeru Block II remains still unsettled. The Collector of West Godavari considered that a suit should be filed to get the survey corrected and he has been requested to take immediate steps in the matter.

There was discrepancy in the survey of the village boundaries of Pora and China Yanam in Amalapur taluk and the Collector of East Godavari states that a land complaint has been filed.

(*b*) *By the Survey of India Party.*—During the year the No. 6 Party of the Survey of India took up the survey on 2″ to a mile scale in the *Lower Godavari* division. Six reserves in the *Lower Godavari* division and 13 blocks proposed for reservation in the Rampa Agency (as detailed in the margin) covering an area of 116 square miles including overlaps were surveyed at a cost of Rs. 6,120 against which a sum of Rs. 4,000 was paid during the year. The same Party surveyed on the 1″ scale the following reserved forests in the *Upper Godavari* division—total area 225 square miles :—

Kansulur, Lakkavaram, Lakkavaram Extension, Marrigura, Nelakota and Rekapalli Hill.

Lower Godavari.

1. Devancheruvu Block I.
2. Devancheruvu Block II.
3. Sudikonda.
4. Tirumalayapalem.
5. Mallavaram.
6. Lakkonda.

Rampa Agency.

1. Lakshmipuram
2. Kannaram.
3. Etulapad.
4. Birampalli.
5. Sitapalli.
6. Bolagonda.
7. Bandepalli.
8. Tunnuru.
9. Vemalakonda.
10. Musurumilli.
11. Nurupudi.
12. Velamalakota.
13. Palem.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

5. *Preparation and control of working plans.*—In *Lower Godavari* a revised working plan for Upputeru Block II, the original plan for which expired by 1927–28 was sanctioned during the year.

Ganjam.—A new working plan for the Ghumsur forests is being prepared by the Working Plans Circle. The prescriptions of the current Ghumsur Working Plan of 1920 were adhered to with certain duly approved modifications. The Mohiri forests of the Berhampur range continued under the working scheme of 1922.

Vizagapatam.—The prescriptions of the sanctioned working plans were generally adhered to except that Sarugudu Bamboo Coupe III, kela bark in Block I of Narasapatam range and Tangedu bark in Palakonda range were not sold for want of bids.

Fire patrols were not employed in Karaka reserve under Conservator's orders. Even the tracing of fire-lines has been abandoned as there were no fires in recent years due to the coppice growth in the felled areas in the several reserves having ousted the growth of grass.

Upper Godavari.—The working schemes for the teak and non-teak areas in all the ranges except Nugur and the tentative working schemes for bamboo areas in all ranges except Nugur and Cherla continued in force. The scheme for the felling of exploitable trees of valuable species (teak, *Pterocarpus marsupium Anogeiseus latifolia* and *Adina cordifolia*) of over $4\frac{1}{2}$ feet in girth under the selection system in the unreserves of Nugur and Cherla ranges was in force.

The re-enumeration of exploitable Yepi (*Hardwickia binata*) trees in the reserves of the Bhadrachellam range progressed with a view to revising the scheme of 1925.

The scheme for the extraction of valuable species in Cherla unreserves is to be revised as the last coupe was worked during the year under report. Enumeration of exploitable trees in Pusuguppa unreserve still available for working has been made during the current year and a scheme will be prepared.

Lower Godavari.—The working schemes for Kopalli, Kovvada and Bedadavole reserves are being revised.

Guntur.—The revised working plan for the Kondapalli reserve returned by the Chief Conservator for amendment in the light of the remarks offered by the Conservator of Forests, Working Plans

Circle, has been sent to Mr. Abdul Karim, Extra Assistant Conservator, for attention. The following revised working plans are under scrutiny :—

Vinukonda-Venkatayapalem working plan dealing with the whole of Vinukonda range and a part of Sattenapalli range.

Repalle working plan dealing with the mangrove forests in the Repalle range lying in the *Guntur* district.

The preparation of a working plan for the mangrove forests in the *Kistna* district has to be deferred as it was found on inspection that the areas are not fit for exploitation for another five years.

Nellore.—The revised working plans for the Sriharikota forests and for the forests in the Sathiavedu range are being scrutinized. The prescriptions of the existing working plan for Sathiavedu forests were generally followed.

2. Communications and Buildings.

6. No new work costing over Rs. 5,000 was sanctioned for execution during the year.

7. *Roads and bridges.*—The expenditure on new works was Rs. 1,970 while that on repairs was Rs. 7,062.

The important works were :—

Ganjam.—(1) Metalling the Rambha Rest house road (incomplete).

(2) Commencement of the earthen road from Tilisingi to Tarasingi.

(3) Commencement of the earthen road from Kukuluba to Gayakonda.

Vizagapatam.—About eight miles of roads in several bits covered by the Viraghattam-Donubai road project.

Upper Godavari.—About 5 furlongs of cart tracks in Sitarampuram and Walsugriva reserves.

Lower Godavari.—Feeder road from the Sudikonda reserve to meet the Local Fund road.

Guntur.—Two paths of $3\frac{1}{2}$ miles were cut in Kondapalli reserve to facilitate inspection.

Nellore.—An earthen road of about two miles in Pudupakkam series for extraction of fuel.

8. *Buildings* —The expenditure on new works was Rs. 14,060 and that on repairs was Rs. 17,304.

The chief works are—

Ganjam.—Completion of the rest-house at Bodogundribadi.

Vizagapatam.—Part construction of the rest-house at Donubai and Forest Guard's lines at Somidevalasa.

Upper Godavari.—Range office and quarters at Vararamachendrapuram, rest-house and out-houses at Madhavaraopeta, subordinates' quarters at Edira, Chendrapatla and Edugurallapalli, Range clerk's quarters at Chintur.

Lower Godavari.—Completion of the Range quarters at Gokavaram and part construction of the rest-houses at Ravigudem and Puliramudugudem.

Guntur.—Inspection shed at Kandlagunta and Adavuladivi.

Tramways—Nellore.—Two miles of tram track were purchased at a cost of Rs. 8,918 for the transport of fuel from the coupes in Sriharikota Island. The revenue realized by the sale of coupes was Rs. 47,569.

9. *Other works.*—The expenditure on new works Rs. 1,155 represents the amount spent on wells in rest-house compounds and subordinates' quarters.

3. Protection of Forests.

(*a*) *General protection.*

10. The subjoined statement compares the total number of offences reported during the year with that of the previous year:—

	1927-28.	1928-29.		
		By Forest officers.	By Revenue officers.	Total.
(1) Injury to forests by fire	81	109	3	112
(2) Unauthorized felling	3,216	1,845	803	2,648
(3) Do. grazing	859	528	50	578
(4) Other offences	258	211	63	274
Total ..	4,414	2,693	919	3,612

There was an increase under "Injury to forests by fire" and "Other offences" while there was decrease under "Unauthorized felling and grazing." The increase under "Fires" was principally in *Upper Godavari* due to the inclusion of undetected cases of suspected incendiarism. The increase under "Other offences" is small. The decrease under "Unauthorized felling and grazing" was principally in *Guntur* and *Nellore* due to better protection and

to the transfer of reserves to panchayats. In *Guntur* cattle owners are reported to resort to panchayat forests for grazing. In *Nellore* it is reported that the majority of offences in past years were detected in forests now transferred to panchayats. There was an increase of 164 offences under "felling" in the unreserves in *Lower Godavari* reported by the revenue authorities.

Out of 683 cases prosecuted in courts 328 ended in conviction and 355 ended in acquittal. Of the cases acquitted 306 were settled by the payment of compounding fees in courts. The total amount of compounding fees realized was Rs. 29,167.

The percentage of cases enquired into by District Forest Officers and the Range officers is given below :—

	District Forest Officer.	Extra Assistant Conservators.	Range officers.
	PER CENT.	PER CENT.	PER CENT.
Ganjam	...	1	21
Vizagapatam ...	...	...	11
Upper Godavari ...	...	...	25
Lower do. ...	...	...	23
Guntur	·5	...	4
Nellore	1	...	9

11. *Rewards.*—No rewards were granted during the year.

(*b*) *Protection from fire.*

12. The areas attempted to be protected in the fire season of 1928 and those actually protected are shown in Form No. 31. The area under special protection was 941,252 acres against 914,583 acres in the previous year, the increase being chiefly in *Guntur* district where Kondapalli reserved forest and its extensions were brought under special protection, the system adopted being early burning. The percentage of successful protection was 77 against 75 in the previous year. The cost per square mile of special protection attempted was Rs. 7-2-0 against Rs. 6-15-0 in the previous year. The area under general protection was 780,462 acres, of which 28,565 acres were burnt or 4 per cent.

Ganjam.—The fire season was on the whole less severe than in 1927. The Khonds in general assisted the department in preventing and putting out fires. Rewards to the extent of Rs. 213 were distributed to the Khonds of Pondakhol.

Vizagapatam.—The fires in Sanivaram and Dharakonda reserves were chiefly caused by the Agency hillmen while baking Bauhinia Vahlii and boiling sago palm toddy. The Agent personally warned them.

Upper Godavari.—The fire season of 1928 was as dry as that of 1927. A reward of Rs. 2,063 was disbursed to the Koyas and Reddis for successfully protecting the forests.

Lower Godavari.—The settlers of the Peddapur range were granted rewards amounting to Rs. 657 for successful protection. The hillmen (Koyas and Reddis) of Polavaram did not interest themselves in fire protection and the majority of fires occurred in this range, one fire alone covering an area of 5,702 acres in Papikonda. No rewards were granted to them this year also.

In *Guntur*, early burning was introduced in the Kondapalli reserve and its extensions.

In *Nellore*, modified early burning as in previous year was continued in all the ranges except Sriharikota. The work began in January but was carried on till the end of March due to abnormal rains in February and March.

(*c*) *Protection from cattle.*

13. The area open to grazing of all animals except goats was 2,206 square miles against 2,225 square miles in the previous year, the decrease being due to the closure of worked coupes. In *Guntur* the closed areas of reserves in the Kistna Revenue district were wrongly shown as open to grazing in the last year's return. Goats were excluded from all the reserves. The grazing incidence in the several districts was—

	1927-28 Acres per cow unit.	1928-29 Acres per cow unit.
Ganjam	6·50	6·06
Vizagapatam	5·00	5·00
Upper Godavari	5·12	4·89
Lower Godavari	2·19	2·10
Guntur	3·15	3·29

In *Nellore* out of 142 kanchas 132 were sold at different rates, including 11 which were given on long lease. Ten kanchas remained unsold for want of demand. In Sriharikota Island where the village lump sum grazing system is in vogue, the protection of recently felled coupes and the coupes under felling is bad. Steps are being taken to afford effective protection to the closed coupes.

The number of cattle licensed to graze on payment was 348,734 against 354,799. The decrease of 6,065 is small when compared with a total of 3½ lakhs of animals.

The number of cattle impounded during the year was 8,970 against 15,785 in the previous year. The decrease was generally due to less number of cattle concerned in grazing offences which showed a decrease during the year.

(d) Protection against injuries from natural causes.

14. Climber and creeper cutting has been mentioned in Chapter III. Silviculture.

Guntur.—The destruction of ficus growing on the walls of the Kondapalli Palace bungalow was successful with the use of "mortweed" solution.

Nellore—Parasites.—The important parasites are Loranthus longifolius and Viscum. Both of these are present throughout the division but their effect is most noticeable in the Sriharikota Island where they attack the nux-vomica tree. Experiments conducted spasmodically from 1921 show that Loranthus is more harmful than Viscum though much less prevalent.

Prickly-pear.—In Sriharikota it is coming up in areas which have recently been felled over. Eradication has not been done in the immediate past, but it will be taken up this year, coupes will be treated in the two years immediately following felling, by spraying with Arsenic pentoxide solution.

CHAPTER III.—SILVICULTURE.

Section 1.—Formation and Regeneration of Forests.

(i) General progress of areas under regeneration.

15. *Ganjam.*—Natural regeneration of Sal on the clear-felled areas continued to be very satisfactory. There was no appreciable flowering of bamboos in Buguda Range or elsewhere.

Vizagapatam.—Natural regeneration of Sal by seed in Palkonda Range and of *Pterocarpus marsupium, Terminalia tomentosa, Xylia, Chloroxylon swietenia* and *Anogeissus latifolia* in Dharakonda and Sanivaram reserves was good. Natural reproduction in the Narasapatam Range was on the whole good.

Seedlings of *Bambusa arundinacea* are coming up profusely. *Dendrocalamus strictus* also seeded in the Dharakonda and Sanivaram reserves and its regeneration is good. Sporadic flowering of *Dendrocalamus strictus* was observed in Burna and Antikonda reserves in the Palkonda Range.

Upper Godavari.—Natural regeneration of *Terminalia tomentosa* and *Pterocarpus marsupium* was good while that of teak and Xylia was fair. *Hardwickia binata* did not seed.

Lower Godavari.—Regeneration of teak in the worked coupes of the reserves of Polavaram Range was fair, being best in Bedadavole Felling Series. In Coupe XI of Ammayagoppu valley of Rajavommangi reserve, the area planted with two-year old stump

plants was good. The natural regeneration of hard woods particularly *Terminalia*, *Xylia*, *Pterocarpus marsupium*, *Soymida* and *Lagerstroemia* in Polavaram range was good.

Guntur.—Natural regeneration of Mada (*Avicennia officinalis*) was satisfactory, in the tidal forests of the Repalle range. Regeneration of yepi was good in Vinukonda range and in parts of Sattenapalli range. The regeneration of other species in Kondapalli reserve was fair.

Nellore.—It is satisfactory to note that throughout the forests small seedlings are coming up. This is particularly noticeable in Sriharikota range.

(ii) *Establishment of reproduction under working plans or schemes.*

(*a*) Mainly natural.

16. In *Ganjam*, regeneration was entirely natural. In *Vizagapatam* coppice reproduction was good in all the felled coupes. In *Upper Godavari* regeneration fellings at a cost of Rs. 278 were conducted in five coupes (242 acres in all) to be felled five years later with a view to open the canopy and to give more light to teak and Terminalia seedlings and to promote seed-bearing and germination of the valuable species. Coppice reproduction in all the felled coupes was good. It was noticed that teak coppice was taller than the coppice of other species especially in the case of coppice not more than three years old. In *Lower Godavari*, regeneration was mainly natural except for one casuarina plantation in the belt of the sandy coastal reserve of Kandikuppa and in plots where teak was raised artificially near Sudikonda. In all the clear-felled coupes coppice reproduction was good. In *Guntur*, natural regeneration was satisfactory in the mangrove forests. The regeneration by seed was fair in all the ranges. Coppice reproduction was fair. In *Nellore*, reproduction by coppice in all the felled coupes was fairly good. Natural regeneration of *Shorea Thumbuggaia* in Kambakkam plateau and of other species, such as, *Eugenia jambolana*, *alternifolia*, etc., was good. Natural regeneration was very good in all the felled coupes especially in the Sriharikota range where many seedlings from 2 feet down to a few inches are seen all over the area.

(*b*) Mainly artificial.

17. *Vizagapatam.*—Sal seed (three bags) was collected at a cost of Rs. 7-8-0 and sown over 18 acres in Sal coupe I of the Palakonda range. A plot of 5 acres in Arlova reserve in Narasapatam range was cleared and the wood was burnt and the ground was ploughed

twice at a cost of Rs. 5 and *Cassia auriculata* was sown as desired by the Deputy Forest Utilization Officer. Teak is growing fairly well near Chinagora of Palakonda range.

Upper Godavari.—The following operations were carried out in the clear-felled and modified taungya coupes during the year.

Walsugriva Coupe No. II.—In April 1928 teak seeds were dibbled 6 feet apart over 10 acres deficient in teak. By way of filling up casualties 1,045 teak stumps were planted 6′ × 6′ in two rows next to the road in the first week of July 1928, 1,700 germinating teak seeds from dumps were notched in July 1928 and 4,000 germinating teak seeds were notched in August 1928. The cost of these operations was Rs. 5. Weed growth was removed around teak seedlings to a radius of 2 feet and climbers were cut in July and September 1928 at a cost of Rs. 23. The percentage of success was 90 in the case of teak stumps, 8 in the case of dibbling and 40 in the case of notching. The average height of the seedlings was 1 foot in the case of stumps, 6 inches in the case of notching and 3 inches in the case of dibbling. Average height of the teak coppice shoots was 7 feet.

Walsugriva Coupe No. I.—In the first week of July 1928, 11,000 teak seedlings and 1,850 teak stumps were planted by way of filling up casualties. This coupe was clear-felled in 1926–27. Oldest seedlings in this are therefore two years old. Teak seedlings are 3 feet to 8 feet high while the average heights of maddi and yegisi seedlings are 1 foot 3 inches to 1 foot 6 inches respectively.

Ramachendram Coupe No. VIII.—Teak seeds were dibbled, after burning at stakes, 6 feet apart in the second week of April 1928. Germination was satisfactory except in the case of seeds dibbled in ashes. The height of the seedlings which resulted varies from 3 inches to 6 inches. This is a year's growth. In July and August 1928, 8,930 germinating teak seedlings from dumps were notched 6 feet apart at stakes over an area of about 8 acres by the students of the Vernacular Training School, 1928, and the beat staff. Fifty per cent of the plants planted in July 1928 have succeeded while those planted in August 1928 show a much smaller percentage of success. Height of the seedlings one year old varies from 3 inches to 6 inches while that of the coppice shoots of the same age varies from 3 feet to 10 feet.

In coupe I, Peddamidisileru, clear-felled in 1927–28, the tallest teak coppice shoot is 13 feet 6 inches.

In coupe III, Tunikicheruvu, clear-felled in 1923–24, the tallest teak coppice shoots are 35 feet high and 1½ feet in girth at 4 feet 6 inches; some of these shoots flowered in 1928. In this coupe a few teak coppice shoots showed the following height growth during

the five years of their existence: First year = 6 feet 9 inches, second year = 7 feet 9 inches, third year = 6 feet 7 inches, fourth year = 5 feet 8 inches and fifth year = 2 feet 3 inches. Total height 29 feet. In coupes I, II, III and IV, Dummagudem reserve, clear-felled in 1924–25, 1925–26, 1926–27 and 1927–28, respectively, tallest teak coppice shoots were 25 feet 3 inches, 22 feet, 15 feet and 10 feet 6 inches respectively. In all these four coupes, the coppice of other species was shorter than the teak coppice.

Modified Taungya Coupe No. II, Rekapalli Hill reserve (22 *acres*).—The area was burnt and ploughed in April 1928. Teak seeds were dibbled at 23,000 stakes 6 feet apart, at 5 seeds per stake on the 19th and 20th April 1928; casualties were filled up with 3,700 teak seedlings from Darapalli nursery on 27th June 1928, 2,000 teak stumps from Darapalli nursery and with 6,000 germinating teak seeds from dumps in July 1923. One thousand six hundred and fifty maddi and 1,150 yegisi germinating seeds from dumps were also notched in July 1928. Further casualties were filled up with 5,000 teak seedlings on 7th August 1928 and 1,250 germinating teak seedlings, 1,000 maddi and 250 yegisi seedlings also were notched in the fourth week of August 1928. In September 1928, 1,025 teak stumps from Venkampalem and Pulusumamidi old nursery were planted. The percentage of success is reported to be 95 in teak stumps, 58 in teak notches, 40 in teak transplants, 25 in maddi notches and 39 in yegesi notches. The height of the seedlings is reported to be about 6 inches. The cost of the operation was Rs. 207.

Modified Taungya Coupe No. III, Rekapalli Hill reserve (20 *acres*).—The area was taken back from the Koyas on 15th January 1929. The regrowth and the stalks of the field crop were cleared and burnt from 15th March 1929 to 23rd March 1929 at a cost of Rs. 10.

Modified Taungya Coupe No. I, Kansulur reserve (20 *acres*).—The coupe, having been cultivated by Koyas last year, was resumed from them early in March 1929. It was burnt departmentally, first burning in first week and second burning in the third week of March 1929. This coupe has since been given two rounds of ploughing and then dibbled with teak seeds in April and May. Details of cost will be furnished in the report for 1929–30.

Lower Godavari.—An area of 59 acres of Coupe V of Kandikuppa reserve was planted up with casuarina at a cost of Rs. 995 in July 1928. The casualties were heavy owing to the failure of rains but were filled up as they occurred. The heavy casualties in Coupe IV planted during the previous year were replaced during the year.

Guntur.—Sandal was raised in twenty ¼ acre plots near water sources in Kondapalli reserved forest and the results were satisfactory.

In the breached Nayudupalem tank bed in Bollapalli Extension 7 Reserve an area of 5 acres was selected and the babul growth was extracted at a cost of Rs. 54 and sold for Rs. 128. The area was fenced and goats and sheep were penned in it and fed with babul pods. The area was then cross ploughed and sown with cotton seeds. The germination of babul was good, the cotton also yielding a good crop. The operation of penning the goats, feeding them with babul pods and sowing babul and cotton seeds was given to a contractor who reaped the cotton crop in return for the work done. The cotton stalks overtopping babul were cut.

Nellore.—In the regeneration sample plot of *Shorea Thumbuggaia* in Kambakkam plateau, dibbling of sandal was done over an area of 5 acres but there was no germination which was due to late sowing, i.e., in November 1928.

18. *Afforestation.*—Nil.

(iii) *Plantations and other forms of regeneration not under working plans or schemes.*

19. *Ganjam.*—Ten cents planted with red sanders in Napier's Park in September 1923 contains 115 trees. They are thriving. Out of the 86 red sanders plants in the plot opened in 1926 only 28 survive.

Vizagapatam.—The orange tope at Busilikota is in good condition and the produce is leased out annually.

Upper Godavari—Old Taungya Coupe No. II of Rekapalli Hill reserve.—Climbers and bamboos interfering with teak were cut back by the students of the Vernacular Training School in June 1928.

Lower Godavari, Peddapur range.—The 10-acre plot in coupe I of Ammayagoppu Valley (Rajavommangi reserve) which has been podued for two years was made ready for regeneration with teak in 1929. An area of 7 acres adjoining this 10-acre plot was clear-felled and burnt in 1927–28 and was regenerated in 1928–29 with teak at a cost of Rs. 100 by (i) sowing, (ii) by planting 2-year old stumps and (iii) by transplanting 1-year old plants with root fully intact but with the shoot cut down to 2 inches. The growth in the portion of the area planted with 2-year old plants is more vigorous so far, and the tallest plant is now eight feet.

Gokavaram range.—In addition to the three 2-acre teak plots raised in 1927–28 in the Mallavaram reserve, two more teak plots (2 acres each) were raised in Tirumalayapalem 'A' Series, Coupe

IX' and Mallavaram 'C' Series, Coupe IX, by dibbling seeds at stake. The work was done late and the result was not satisfactory in spite of constant attention in working up the soil and weeding.

One year old teak seedlings were transplanted in a quarter acre adjoining the 2-acre plot in Tirumalayapalem, Coupe IX, during the early rains. These seedlings came up very well, the tallest plant being about $3\frac{1}{2}$ feet high.

The total expenditure on the formation of the 1928-29 teak plots was Rs. 71 while the expenditure on the maintenance of the old teak plots was Rs. 36.

(iv) *Tending.*

20. *Upper Godavari.*—Teak seedlings were tended by cutting weeds, climbers and regrowth, etc., in all clear felled and modified taungya coupes.

Lower Godavari.—The 15-acre casuarina plantation of 1923 (Kandikuppa reserve) planted 6′ × 6′ was thinned as follows:—

A third of the area where the stocking was complete was thinned by a 50 per cent mechanical thinning.

A third was thinned by a 50 per cent mechanical thinning by cutting alternate trees in each row and in the remaining third, a thinning on ordinary principles was carried out.

The financial result was satisfactory, the net revenue amounting to Rs. 94 per acre.

The 5-acre casuarina plantation of 1923 (Kandikuppa reserve) planted 9′ × 9′ was very lightly thinned. In Rajavommangi reserve weeding, working up the soil, etc., was done in teak plots, at a cost of Rs. 100. Similar work was done by the subordinates in the old plots of Vatangi and Lododdi reserves. The Osurpad regeneration area was weeded thrice at a cost of Rs. 18 owing to thick weed growth.

(v) *General.*

21. *Vizagapatam.*—The sandal sowings in the Narasapatam and Palakonda ranges were not successful during the year.

All the sandal plants in reserves and rest-house compounds are growing well and many have become seed bearers.

Seven thousand palmyra seeds were sown round felled coupes in Arlova, Madalammakonda and Pedimikonda reserved forests in Narasapatam Range, but there is no germination yet.

Sowing of sal seeds in patches and stump planting.—One thousand one hundred and fifty sal seedlings raised in the nursery at Donubai were stumped and planted in sal coupe I, Palakonda Range, in places where sal seedlings were absent.

Sal seeds were sown in coupe I in 1,800 pits 6 feet apart at 8 to 10 seeds in each pit. An enumeration in February 1929 showed 1,824 seedlings in 235 patches and 246 seedlings in 46 lines. Only 169 seedlings were found surviving in May 1929.

Dibbling.—One hundred and seventy-one sal seedlings survived in 25 mounds in the two plots of half acre each dibbled in Burna reserve near Mekava village last year.

Sowing.—The sal seedlings which resulted from the sowings in one acre in Burna near Polla Podu were 1,018, of which 181 were surviving in May 1929.

Weeding.—The mounds were cleared of all weeds and creepers.

Upper Godavari.—Sandal sowings were abandoned under Conservator's orders.

Lower Godavari.—The natural regeneration of timber species in most of the reserves was good.

SECTION 2.—TENDING OF THE GROWING STOCK.

22. *Ganjam.*—The following works were carried out during the year:—

(1) Heaping and burning of refuse and cutting back switch growth in

Coupe X, Plains Sal Timber Working Circle, Series I, in Gallery reserved forest (138 acres) at a cost of Rs. 552.

Coupe X, Plains Sal Timber Working Circle, Series II, Kriamba reserve (39 acres) at a cost of Rs. 155.

Coupe VI, Ravine Working Circle, Rambha reserve (45½ acres) at a cost of Rs. 83, after reclearing (see below).

Coupe VII, Ravine Working Circle, Rambha reserve (42 acres) at a cost of Rs. 190.

(2) (*a*) Cleaning in Coupe IX, Plains Sal Timber Working Circle, Series I, Brahmanasayi reserve (130 acres) at a cost of Rs. 390.

(*b*) Cleaning in Coupe IX, Plains Sal Timber Working Circle, Series II, Kriamba reserve (43 acres) at cost of Rs. 78.

(*c*) Reclearing in Ravine Coupe VI of Rambha reserved forest (47 acres) at a cost of Rs. 117-9-0.

(3) (*a*) Second cleaning in Coupe VIII of Series I, Plains Sal Timber Working Circle of Brahmanasayi reserve (128 acres) at a cost of Rs. 352.

(*b*) Second cleaning over the burnt areas of the Plains Sal Timber Working Circle coupes of Buguda Range (48 acres) at a cost of Rs. 95.

(4) Thinnings were done in

Coupe V of Plains Sal Timber Working Circle, Series I, of Kukuluba Range (134 acres) at a cost of Rs. 281.

Coupe V, Plains Sal Timber Working Circle, Series II, of Buguda Range (39 acres) at a cost of Rs. 51.

Coupes I and II of Ravine Working Circle of Rambha reserve at a cost of Rs. 371.

Thinnings were also done in the Pole Working Circle in

Mojjogoda Range over 26 acres at a cost of Rs. 39.

Russellkonda Range over 420 acres at a cost of Rs. 399.

Bontha Range over 51 acres at a cost of Rs. 135.

Buguda Range over 393 acres at a cost of Rs. 514.

Surada Range over 649 acres at a cost of Rs. 1,008.

Vizagapatam.—Creeper cutting in the Sal area of Coupe I was done at a cost of Rs. 18 at Re. 1 per acre. In the felled coupes creeper cutting was done by contractors A sum of Rs. 3 was spent for the eradication of lantana in the Arlova reserved forest in the Narasapatam Range to remove the menace at the outset.

Upper Godavari.—Creepers were cut by the subordinates in the reserves during their patrol.

Lower Godavari.—Creepers were cut in felled coupes of Gokavaram Range at a cost of Rs. 79. In the Polavaram Range cleaning and creeper cutting were done in the worked timber coupes of Kopalli and Bedadavole reserves while soft wooded species in the unworked teak areas of Kovvada and Bedadavole reserves were girdled at a cost of Rs. 233.

Nellore.—Climbers and Euphorbia were cut by fuel contractors and subordinates. The felled coupes were fenced by contractors.

CHAPTER IV.—EXPLOITATION.

(*a*) System of Management.

(i) *Major produce.*

23. The silvicultural systems in force were :—

Clear felling—Ganjam.—In the Goomsur forests clear fellings were carried out in both the series of the Plains Sal Timber Working Circle and the Ravine Working Circle as detailed below :—

Series I—Periodic Block 1.—Residual growth in Coupe X (Ambazora reserved forest) should have been clear felled and the area regenerated during the year. Owing to inaccessibility of the locality the coupe could not be sold. Coupe X of this series, area 136 acres, was therefore located in the Miniari block (Gallery

reserved forest) and the standing growth was sold in two halves for Rs. 9,448. The deviation was sanctioned by the Chief Conservator.

Three hundred reject logs of 2,798 cubic feet felled during the mill felling in the original Coupe X in Ambazora reserved forest during 1927–28 were sold during the year for Rs. 262–5–0.

The standing growth in Coupe XI of 134 acres which is to be regenerated in February 1930 was sold in two bits for Rs. 13,270 with voidah from 1st March 1929 to 15th February 1930.

Series II—Periodic Block I.—Kriamba Coupe X of 39 acres was sold standing for Rs. 2,037–12–0 after the removal of timber fit for the sawmill in 1927–28.

Coupe XI of 37 acres was similarly sold for Rs. 2,627. This coupe will be regenerated in February 1930. Six hundred and forty-seven reject logs of 4,175 cubic feet in this coupe felled during the mill felling were sold for Rs. 1,136.

Ravine Working Circle.—Standing growth in the balance of 5 acres of Rambha Ravine Coupe V was sold at Rs. 12 per acre and that in Coupe VII, 42 acres, was sold at Rs. 30–2–0 per acre for Rs. 1,265. These two areas were regenerated in 1929.

Coupe VIII of 113 acres was sold in February 1929 with voidah from 1st March 1929 to 15th February 1930 for Rs. 2,938. This coupe will be regenerated in February 1930.

Five thousand three hundred and eighty-two cubic feet of timber fit for the sawmill was extracted from compartment 3 of Kriamba reserved forest of which 2,904 cubic feet were carted to the mill. Seven thousand two hundred and sixty-seven cubic feet of reject timber including balance of 1927–28 timber was sold for Rs. 1,971.

Twenty-one thousand six hundred and fifty-two cubic feet of reject timber in stock in compartment 5 of Kriamba reserved forest was sold during the year for Rs. 5,649.

Similarly 7,439 cubic feet of reject timber in compartment 4 was sold for Rs. 2,470.

Ten thousand five hundred and fifty-three cubic feet of reject timber in compartments 2 and 5 (*a*) of Darpangia reserved forest was sold for Rs. 2,528.

Vizagapatam.—The growth in 2 acres of Chinamangalapuram tope was clear-felled by a contractor and the tope was disforested during the year.

Sal Coupe II of 18 acres was clear felled. The yield of saleable timber was 2,514 cubic feet. About 100 cart-loads of small stuff which does not pay the cost of transport to Veeraghattam was sold in the coupe for Rs. 75.

Three hundred and twenty-seven cubic feet of saleable timber was also removed during the year from Coupe I of 1927–28.

Upper Godavari.—Clear-fellings were done departmentally in two coupes in each of the Marrigudem and Bhadrachalam ranges and one coupe in each of the Pulusumamidi and Cherla ranges. The financial results are shown in the following table :—

Range.	Reserve.	Area in acres.	Gross expenditure.	Gross revenue.	Cost per acre.	Net revenue per acre.
			RS.	RS.	RS.	RS.
Pulusumamidi ..	Walugriva coupe II.	31	1,132	8,894	37	250
Marrigudem ..	Sitarampuram coupe IV.	36	2,057	17,519	63	430
	Ramachendram coupe VIII.	56	2,222	12,196	40	176
Bhadrachalam ..	Dummugudem coupe IV.	73	2,247	8,909	31	91
	Tonikicheruvu coupe VIII.	36	1,353	10,412	38	252
Cherla	Peddamidisilera coupe I.	25	753	2,726	30	79

The yield of timber (all species) from the above 6 coupes was 8,277, 15,488, 13,480, 8,986, 8,515 and 3,499 cubic feet of which 4,755, 9,069, 8,457, 7,039, 6,161, and 2,680 cubic feet respectively was teak.

Lower Godavari.—Timber coupes V (*a*) and VII of 40 and 54 acres in Kopalli and Bedadavole reserved forests respectively were worked through the agency of a contractor. All saleable timber was extracted and the refuse was burnt. The resulting coppice shoots of teak, Terminalia and Pterocarpus and other important species were tended.

Selection fellings—Ganjam.—Five hundred and four logs of 4,580 cubic feet of mill timber in Darpangia reserved forest and 102 logs of 1,417 cubic feet in Brahmanasayi reserved forest which were cut and brought to stock in the previous year, were carted to the saw mill.

Selection fellings in Chandragiri reserved forest were carried out during the year. The yield was 225 logs of 2,934 cubic feet of which 183 logs of 2,773 cubic feet were carted to the saw mill.

The reject timber in the selection working circle which was sold during the year is shown below :—

				RS.
Chandragiri	reserved forest	13,664	cubic feet ...	2,687
Darpangia	,,	77,077	,, ...	15,676
Brahmanasayi	,,	30,027	,, ...	7,377
Kriamba	,,	6,604	,, ...	2,066

Vizagapatam.—One thousand nine hundred and fifty-nine cubic feet of Sal timber was extracted from Block II (coupes X to XIII) in Palakonda range.

Improvement fellings—Ganjam—Series—I Periodic Block II.—One hundred and eighty-four logs of 872 cubic feet of mill timber in stock at the close of the previous year were carted to the saw mill. 22,906 cubic feet of reject timber in stock was sold for Rs. 7,221 during the year.

Series I—Periodic Blocks III and IV.—Mature trees fit for the saw mill were extracted from the Tiki reserved forest. The total yield was 1,869 logs of 17,237 cubic feet of which 316 logs of 3,147 cubic feet were carted to the mill. One thousand two hundred and ninety-six logs of 10,083 cubic feet were sold for Rs. 2,367. The remaining quantity was sold during the current year. No other improvement fellings were carried out in the area.

Simple coppice.—The fuel coupes in all the divisions were worked under the simple coppice system. In the *Lower Godavari* division a contractor used a mechanical cross-cut saw worked by a 7 h.p. Petter's Oil Engine for billeting casuarina trees in Kandikuppa reserved forest. Thereby he reduced his costs and saved time.

Unregulated fellings.—These were as usual confined to the unreserved lands and to the Rampa forests.

In *Upper Godavari*, these were confined to the unreserves, which are under the control of the Forest department. The fellings were carried out in coupe XI of Cherla range unreserves and coupe VI of Nugur range unreserves.

The timber extracted from coupe VI together with 69 standing trees in that coupe and 234 trees marked for felling in coupe VII of Nugur range were sold to a contractor for Rs. 16,368.

11,145 cubic feet of timber extracted from coupe XI of Cherla range, of which 844 cubic feet was teak, was sold for Rs. 13,791.

Taungya—Upper Godavari.—The saleable timber extracted departmentally from the modified taungya coupe IV of Pulusumamidi range and coupe II of Lakkavaram range was carted to the river bank and sold in October 1928. The financial results are noted below :—

Coupe number.	Number of logs.	Quantity.	Cost of working.	Revenue realized.
		CFT.	RS.	RS.
IV of Pulusumamidi range ..	2,685	15,776	1,504	10,696
II of Lakkavaram range ..	1,671	5,244	538	1,952

The right to cut and remove saleable timber from modified taungya coupe V of Pulusumamidi range 20 acres was sold for Rs. 1,040. Coupe III of Lakkavaram range could not be sold for want of bidders. It will be worked departmentally during the current year. These areas will be handed over to Koyas for cutting and burning the valueless timber and for raising field crops. They will be taken back from the Koyas after harvest, for regeneration.

(ii) *Minor produce.*

24. *Bamboos and minor produce.*—Three methods of extraction were in vogue, viz., (1) departmental collection, (2) leasing the right of collection and (3) collection on permits.

The first method was resorted to only to meet the requirements of the department for repairs to buildings, etc. The produce was generally leased out to contractors except in the Sriharikota range of *Nellore* district where the minor forest produce was collected departmentally through the Yanadies.

The right to collect seigniorage from the purchasers at shandies for minor produce purchased from the hillmen was leased out to contractors as usual in *Vizagapatam.*

Collection on permits was allowed from forests, not leased out in *Upper Godavari*, in Rampa and in the unreserves of the *Lower Godavari* Division. In *Guntur* permits are reported to have been issued for stone whenever there was demand.

Strychnos Nux-vomica.—In *Upper Godavari* there was no demand during the year. In *Lower Godavari* the right to collect was sold for Rs. 270.

Cassia auriculata bark.—The right to collect this item was leased out in Narasapatam range of *Vizagapatam* and the *Lower Godavari*, *Guntur* and *Nellore* divisions.

Cassia fistula.—The right to collect this produce was leased out in Balliguda Agency and in the Russellkonda range in *Ganjam* and in *Upper Godavari.*

Tuniki leaves.—The right to collect Tuniki leaves for beedies was leased out in *Upper Godavari* for Rs. 2,000.

Fodder grass and hay—Ganjam.—The right to cut grass in Napier's Park reserved forest was leased out for Rs. 14.

Lower Godavari.—Free removal of fodder and thatch grass was allowed for domestic purposes as in the previous year from all reserved forests except Coringa, Coringa Extension and Kandikuppa where the right to remove was leased out for Rs. 695. The annual lease amount of Rs. 1,200 on account of fodder grass in Samalkota cantonment ground for the year 1927–28 and the same amount was collected for 1928–29 also during the year.

(*b*) Agency of Exploitation.

(i) *Departmental Agency.*

25. The outturn of major produce by departmental agency is compared with that of the previous year in the following table :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos value.	Minor forest produce value.
			Rs.	Rs.
1927–28	658	194	278	13,527
1928–29	212	67	359	8,294

The large decrease under timber was in *Ganjam*, due to the stoppage in May 1928 of all fellings for the Russellkonda saw mill.

The decrease under fuel was accounted for by the non-working of indicator areas and to there being no top portions of trees felled for Russellkonda saw mill supplies.

The increase under bamboos is due to extraction of bamboos for reconstruction of sheds for District Forest Office clerks at Kunavaram, which had been burnt.

The decrease under minor forest produce was in *Vizagapatam*, *Upper Godavari*, *Lower Godavari*, due to less collection of seeds for departmental sowing and in *Nellore* to less receipts in Sriharikota Island.

(ii) *By purchasers.*

26. The following statement shows the quantity of major produce and the value of minor produce removed by purchasers during the year and in the previous year :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Grass and grazing.	Other minor produce.
			Rs.	Rs.	Rs.
1927–28	697	5,044	1,01,232	1,15,006	1,06,342
1928–29	606	5,327	1,28,312	1,15,087	1,18,503

The decrease under timber was in *Vizagapatam* due to handing over of some reserves in the Sarvasidhi Range and in *Guntur* due to less removals of trees on darkhast lands.

The increase in fuel was in *Guntur* and *Nellore* due to a larger number of fuel coupes having been sold in 1928–29 as per working plans under preparation.

The increase under bamboos was in *Upper* and *Lower Godavari* due to keener competition at the sales of bamboo coupes.

The increase under minor produce is due to raising the seigniorage rate on tamarind by 50 per cent in *Lower Godavari*, to sale of

the right to collect Tuniki leaves in *Upper Godavari* and to a larger amount of tree owners' fees realised.

(iii) & (iv) *By right-holders and under privileges and free grantees.*

27. The following table shows the quantity and value of the produce removed under this head :—

—	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos.	Grazing.	Other produce.	Total.
		Rs.		Rs.	Rs.	Rs.	Rs.	Rs.
Right-holders ..	3	375	..	..	63	2,248	..	2,686
Free grantees ..	465	62,036	67	8,059	841	12,733	4,486	88,155

Ganjam.—The Khonds of Chokkapad Khandam have a right to free removal of timber, etc., for their domestic and agricultural purposes and free grazing of cattle. They were allowed to enjoy their rights during the year.

The Khonds elsewhere than in Chokkapad were granted concessions for rendering necessary help in putting out fires.

Lower Godavari.—The Koyas and Reddis of the Agency continued to enjoy the right of free removal of unclassified timber for domestic and agricultural purposes.

Free grants.—Free grants were made chiefly for rebuilding houses burnt by fire or destroyed in floods. In *Nellore* free grants ordered on a very extensive scale during the year also as a result of the cyclone of November 1927 were availed of.

In *Vizagapatam* free grazing to the extent of Rs. 964 was allowed in Dharakonda and Sanivaram reserved forests to the neighbouring hill villages for services rendered in fire protection.

The fuel supplied to the Port Conservancy Board, Cocanada, from the Coringa extension reserved forest is also shown under free grants.

(*c*) OUTTURN AND SOURCES OF FOREST PRODUCE.

28. The total outturn from all agencies is compared in the following statement :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Gross value of minor forest produce, including grass and grazing
			Rs.	Rs.
1927-28 .. .	1,750	5,431	1,02,212	2,54,366
1928-29	1,286	5,461	1,29,575	2,61,351

The yield of timber from unreserves as compared with that from reserved forests is high only under 'Purchasers' in *Lower Godavari*, *Guntur* and *Nellore* and under 'Free grants' in all districts except *Ganjam*. The reasons are that in *Lower Godavari* removals of timber from Rampa are effected on permits, that all trees standing on darkhast lands are classed as timber by the Revenue Department who collect such revenue and that all free grants are made as far as possible from unreserves.

CHAPTER V.—FINANCIAL RESULTS.

29. The following figures show the financial position of the Circle compared with the previous year :—

	1927-28.	1928-29.
	RS.	RS.
Receipts.		
Revenue	8,18,385	11,35,573
Deduct refunds	— 5,960	— 2,503
Net Revenue ...	8,12,425	11,33,070
Expenditure.		
(*b*) Conservancy and Works	2,06,162	1,37,769
(*c*) Establishments	5,10,879	4,92,185
52-A. Capital outlay on Forests ...	27,020	39,861
Total expenditure ...	7,44,061	6,69,815
Surplus ...	68,364	4,63,255

The following statement shows the financial position of the divisions during the year under report :—

—	Revenue.	Expenditure.	Deficit or surplus.
	RS.	RS.	RS.
Ganjam	3,73,394	1,87,307	+ 1,86,087
Vizagapatam	56,206	45,871	+ 10,335
Upper Godavari	1,53,413	1,13,063	+ 40,350
Lower Godavari	2,57,614	1,07,723	+ 1,49,891
Guntur	1,54,242	78,938	+ 75,304
Nellore	1,37,904	88,523	+ 49,381
Direction	297	48,390	— 48,093
Total ..	11,33,070	6,69,815	+ 4,63,255

The above shows that all the divisions worked at a profit. The surplus in *Ganjam* was due to adjustments of profits from a Government Commercial undertaking (Russellkonda saw mills) and recovery of investments in the same. The surplus in *Upper Godavari* was

due to keen competition and good prices at the timber and bamboo sales in the year under report. The surplus in other divisions is normal.

The important variations are explained below :—

RECEIPTS.

VIII. (*a*) Timber and bamboos removed by Government Agency.—

	RS.
Timber	+ 70,738
Firewood and charcoal.	— 6,103

The increase under 'timber' was due to the sale of large quantities of timber unfit for the saw mills in *Ganjam*, to greater quantity of Sal timber extracted in Palakonda range in *Vizagapatam*, to better prices realized for timber extracted departmentally in *Upper Godavari* and to credit of the value of timber sold in the previous year from Ammayagoppu valley in *Lower Godavari* in the accounts of the year under report.

The decrease under 'Firewood and charcoal' was mainly in *Guntur* due to non-working of indicator areas.

VIII. (*b*) Timber and other produce removed from the forests by consumers and purchasers.

	RS.
By Forest department	59,888
By Revenue Department	7,325

By Forest department.—The increase occurs under 'timber', 'firewood and charcoal' and 'bamboos' and was due to sale of timber coupes in *Ganjam* in which stood mature timber of saw mill quality, to better prices realized for fuel and bamboo coupes in general and to the sale of seven fuel coupes in Sriharikota range, *Nellore*, during the year under report against three in the previous year.

	RS.	
Profits from Government commercial undertakings	+ 36,539	Relate to the Russellkonda saw mill.
Recoveries of investments in Government commercial undertakings.	+1,40,185	

EXPENDITURE.

	RS.
8. b. Conservancy and Works	— 68,393
52-A. Capital outlay on forests	+ 12,841

The decrease under 8. b. Conservancy and Works was chiefly under 'Timber' (— Rs. 62,392), 'firewood' (— Rs. 2,105), and renewals and replacement of stores, tools and plant (— Rs. 3,885). Under 'timber' the decrease was due to the contraction of departmental fellings in *Ganjam* owing to the closure of the saw mill.

Under ' firewood and charcoal ' the decrease was due to non-felling of indicator areas and under " renewals of stores, tools and plant," to the steam launch ' Thistle ' being idle owing to boiler trouble. This was partly counterbalanced by increase in *Nellore* under II Timber and other produce removed by purchasers due to the adjustment of Rs. 5,000 being the refund to panchayats on account of the pay of watchers.

52-*A*. *Capital outlay on forests*.—The chief variations were under " purchase of live stock " (+ Rs. 4,234), " purchase of stores, tools and plant " (+ Rs. 5,629), " demarcation " (+ Rs. 1,674) and " surveys " (+ Rs. 3,350).

Under " live stock " the increase was due to purchase of the baggage elephant, ' Anarkali,' for *Upper Godavari* ; under " stores, tools and plant " to purchase of two miles of tram line against one mile in the previous year in *Nellore* ; under " demarcation " to the demarcation of unreserve blocks in *Upper Godavari* and in Rampa ; and under " surveys " to the payment of Rs. 4,000 towards the cost of the survey of Rampa by the Survey of India party.

Establishment—Rs. 18,694.—The decrease occurs chiefly under " pay of establishment, permanent " (—Rs. 13,662), " travelling allowance, non-voted " (— Rs. 2,992) and " contract contingencies " (— Rs. 1,442).

The decrease under " pay of establishment, permanent " was due to reduction of staff owing to the handing over of reserves to panchayats, under " travelling allowance, non-voted," to there having been fewer number of Imperial officers in 1928-29 and under " contract contingencies " to economy.

The outstandings of revenue at the close of the year amounted to Rs. 52,711 of which Rs. 16,749 fell due within the year.

Of the revenue realized in the year 44 per cent was from major produce, 32 per cent from minor produce and 24 per cent from other sources.

Of the expenditure 18 per cent relates to ' exploitation ', 18 per cent to ' improvement and up-keep of forests ' and 64 per cent to ' miscellaneous ' items.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

(*a*) Research.

30. No research work was done in this circle but the District Forest Officer, *Lower Godavari*, consulted the Forest Research Officer (1) on the introduction of teak in the upland reserves of Rajahmundry, Peddapur and Gokavaram ranges and (2) on the best method of restocking the parras (saline flats which are blanks) in

the Coringa reserve with tree growth. The Forest Research Officer's suggestions on (1), viz., notching at stakes germinating teak seeds from dumps, were closely followed. In the case of (2), his view supported by the Imperial Silviculturist and the Forest Botanist was that it was useless to attempt to restock such localities where the soil is highly impregnated with salt.

(*b*) Experiments.

31. *Vizagapatam.*—Sal was sown over one acre in mounds in conjunction with field crops in the experimental plot in the Burna reserved forest near Polla in Palakonda range in June 1928. This area was cleared in 1927–28. It was a thorough failure on account of the creeper field crops (e.g., country beans, etc.) which smothered the sal seedlings. An enumeration on 21st November 1928 showed 1,961 seedlings 1″ to 6″ high; but on 10th May 1929 there were only 181 seedlings. A greater number of seedlings was observed in places where there was more lateral shade of coppice and scrub forest, while there were no seedlings in fully exposed places.

In Sal Coupe I of Burna reserved forest patch sowings of sal (in patches 1′ × 1′) were done in June 1928. On 21st November 1928, 1,824 seedlings were counted in 235 patches. These patches serve as dry nurseries from which seedlings will be stumped out in places where there are no seedlings.

Nursery sal seedlings near the Donubai Rest-house.—One thousand one hundred and fifty sal seedlings were stumped out in blanks in Sal Coupe I of Karnamdongu Sal area during the last rains of June 1928. Only 216 stump plants were counted on 21st November 1928. Thus, sowing is the best and cheapest method of artificially regenerating sal in Palakonda range as is the case in other sal tracts.

Upper Godavari.—Experimental plots were opened in Tunikicheruvu and Bandirevu reserves in 1922 and in Ramachendram reserve in 1924 with a view to find out the rate of girth increment of individual satinwood trees in a mixed crop and in a pure crop. The plots in Tunikicheruvu and Ramachendram reserves were continued during the year. In Bandirevu reserve the trees lost their numbers. Most of the trees measured on 16th October 1928 in the Ramachendram reserve plot showed a girth increment of $\frac{1}{4}$″ to $\frac{1}{2}$″ during the last two years.

In view of a demand which is expected from the United States of America for laurel wood (Terminalia tomentosa), two samples of heartwood 6″ × 3″ × $\frac{1}{2}$″ were sent to Dehra Dun for report. The report from Dehra Dun states that laurel is the trade name approved by the Empire Forestry Association and the Government

of India for all Terminalia tomentosa, and records that the samples sent from the division were not 'figured', but were plain straight grained wood, while the samples from the West Coast are 'figured'. Material for microscopical examination has been taken and a further report is awaited. The Dehra Dun report concludes as follows:—

"Figure has always been rather an enigma and even in the same locality it is only some trees which have it. In Bombay Presidency there is a lot of figured stuff as well as plain, but in the Central Provinces and United Provinces figured laurel is quite rare, the usual run being very dull and straight grained. Dark coloured straight grained timber is quite nice of course and for certain purposes more suitable than figured wood, but for high-class cabinet work, well figured laurel is one of the most handsome woods in the world and will always fetch a price which is much higher than that for straight grained wood."

Lower Godavari.—The undermentioned teak plots thrive well:—

Tirumalayapalem Reserve, A. Series.	Plot No.	4	in Coupe No.	VII	opened in	1927
Do.	do.	5	do.	VIII	do.	1927.
Do.	do.	6	do.	IX	do.	1928.
Mallavaram Reserve, C. Series.	do.	2	do.	VIII	do.	1927.
Do. ...	do.	3	do.	IX	do.	1928.
Rajavommangai Reserve.	do.	12			do.	1921.
Do.	do.	13			do.	1922.
Vatangi Reserve ...	do.	14			do.	1921.
Do. ...	do.	15			do.	1922.
Do. ...	do.	16			do.	1922.

All these plots were weeded in July 1928.

In the plots in Mallavaram reserve 70 per cent of the plants in the dibbled areas and 88 per cent in the notched areas survived and were in good condition. The casualties were replaced and the tallest plant on 22nd January 1929 was $9\frac{1}{2}$ feet high at age nineteen months. A leaf defoliator attack was noticed in one of the plots.

Of the three plots in Tirumalayapalem reserve, one in Coupe VIII was remarkably good, especially in the dibbled portion. The tallest plant in January 1929 was about 18 feet high aged nineteen months.

In a plot of 7 acres in Ammayagoppu Valley (Rajavommangai reserve) the portion of the plot planted with stumps two years old was more successful than the one sown. In this there were many casualties owing to the bad drainage in some places and to the effect of the hot weather.

The two podu areas in Polavaram Range, which were stump-planted and were condemned by the Conservator in December 1927 showed some improvement in 1928–29 after the rains but are a failure.

Guntur.—The experiments in Palnad Range for improving the growth by sowing seeds of *Albizzia lebbeck*, *Albizzia amara*, *Chloroxylon swietenia*, *Melia indica*, *Acacia sundra*, etc., are declared to have been a failure. The soil is laid bare by clear felling and it is difficult for seedlings to survive the hot weather, especially as the rainfall is scanty. The experiments will not be continued. The result in the 2½ acre sample plot opened in 1927–28 by clear felling and sowing near Srigiripad is also a failure.

The experimental plot of 3 acres in Venkatayapalem reserve opened in 1926–27, where seeds of different species were sown, was maintained but due to dryness the experiment is practically a failure. The species which are expected to survive, such as Sundra and Yepi, reproduce abundantly by nature.

The half acre plot sown with Nim in Venkatayapalem reserve is a complete failure.

In the Mada experimental plots in Repalle Range, girth measurements could not be recorded as the labels tied to the trees disappeared. No doubt they were removed out of mischief.

Observations in the experimental plots opened in Bollapalli and Guttikonda reserves with a view to find out a cheap and efficient method of regenerating the Yepi forests and referred to in the previous report show that though germination was satisfactory, the survivals after the rains were few. The experiments are continued for another year.

Nellore.—Dibbling of sandal seeds was done on a small scale in Udayagiri and Sathiavedu Ranges. The result in Sathiavedu was not satisfactory, while the propagation is rather hopeful in Udayagiridurgam Hill.

Three small plots of 2 acres each were selected in Rapur, Udayagiri and Kanigiri Ranges in which all undergrowth was cut and promising young stems of *Pterocarpus santalinus*, *Hardwickia binata*, *Anogeissus latifolia* and *Chloroxylon swietenia* were retained. Badly formed, old and hollow stems of these species were cut back. The objects of the experiment are (1) to obtain reliable data of the height and girth increment of these species (2) to check the coppice growth of these species and (3) to compare the rate of growth by retaining all the coppice shoots in some and by reducing the coppice shoots to one or two in the others.

The plots have been fenced.

CHAPTER VII.—ADMINISTRATION.

32. The following officers held charge of the Circle during the year under review :—

	From	To
Mr. D. T. Barry	1st April 1928	6th June 1928.
Mr. F. R. Madan	7th June 1928	31st July 1928.
Mr. J. H. Longrigg	1st August 1928	31st March 1929.

33. *Russellkonda Saw Mill.*—In their Order No. 504, Development, dated 20th March 1928, the Government ordered that the Russellkonda Saw Mill should be closed with effect from 1st July 1928. Messrs. Parry & Co. completed handing over of the mill and properties by 10th July 1928. Since then the disposal of the property and winding up of the concern is being attended to by the Forest Department.

By 31st March 1929 all the properties except the buildings and machinery had been disposed of for the amounts noted below :—

	Rs.	A.	P.
Depot shed at Berhampur and Lorry shed at Russellkonda.	2,020	0	0
Furniture	454	13	0
Wooden sleepers of tram-line	400	0	0
Tram rails transferred to Public Works Department.	1,296	2	0
Motor lorry	4,300	0	0
Ford car	500	0	0
Bicycle	40	0	0
Loose tools transferred to Olavakot	113	0	0
Spare parts (band saws, etc.) transferred to Olavakot.	1,407	0	0
Tools and general stores auctioned	226	2	9
Stationery sold in auction and transferred to District Forest Officer, Ganjam, by book transfer.	47	1	6
Uncut logs in stock of 10,924 cubic feet sold in auction, including 3,465 cubic feet of support logs, the value of which is to be adjusted to the credit of Forest Department.	11,100	9	3
Sawn timber, 15,600 cubic feet, at Russellkonda sold to Mr. V. Kameswararao at Rs. 1-14-0 per cubic foot.	29,251	0	0
Piasal scantlings at Russellkonda sold in auction, 844 cubic feet.	963	0	0
Sal scantlings at Berhampur, 1,187 cubic feet sold in auction.	2,972	12	6
N.G. sleepers at Berhampur delivered to Dewan, Parlakimedi Estate, 6,352 cubic feet.	14,245	1	0
Miscellaneous receipts	323	13	9
Total ...	69,660	7	9

Out of this amount Rs. 3,014-12-9 was outstanding at the end of the year. Since the close of the year orders have been issued to transfer to Nellore 8 pairs of steel tram wheels, one turn table, 100 steel sleepers, 40 fish plates, 6 tram trucks without wooden frames, 12 bearings and 4 brackets for wheels at an estimated value of Rs. 313-12-4. This leaves only the buildings with their furniture and the machinery to be disposed of.

In G.O. Mis. No. 1158, dated 9th July 1929, Government have sanctioned the transfer of the buildings and furniture to the Public Works Department at their book value. The transfer has since been effected. The disposal of the machinery is being dealt with by the Chief Forest Engineer.

34. The proposal to transfer the Kanigiri Range of the *Nellore* division to the *South Kurnool* division of the II Circle has been approved by the Chief Conservator and the notification regarding the transfer has been sent up.

A portion of the Kothur Reserved Forest (1,171 acres) was transferred from the *North Cuddapah* division to the *Nellore* division.

35. Mr. P. Govinda Menon, Extra Assistant Conservator of Forests, completed his reconnaissance of the Golgonda Agency forests and his report was submitted to the Chief Conservator of Forests.

36. The final report on the Balliguda forests in *Ganjam* prepared by Mr. Said-ud-din Ahmed, Extra Assistant Conservator of Forests, was also submitted during the year.

37. M.R.Ry. V. N. Seshagiri Rao Avargal, Extra Assistant Conservator, made considerable progress in the selection and demarcation of blocks proposed for reservation in the Rampa Agency of the *Lower Godavari* division.

38. *Tours.*—The Chief Conservator visited *Ganjam* in January 1929.

The Conservator spent 170 days in camp touring in all the divisions of the Circle except *Upper Godavari.*

All the District Forest Officers spent more than the prescribed minimum in camp except the District Forest Officer *Upper Godavari* who was excused from touring owing to ill-health.

39. *Inspection of District Forest and Range offices.*—The Conservator inspected all the District Forest offices except *Upper Godavari.*

All the Range offices in the Circle except two, one in *Upper Godavari* and one in *Lower Godavari*, were inspected.

40. *List of offices audited.*—The Accountant-General's staff inspected the accounts of all the divisions in the Circle for 1927-28 and the result was generally satisfactory.

41. *Vernacular Training School.*—The session of the Vernacular Training School in *Ganjam* which commenced on 7th January 1928 closed on 19th June 1928. M.R.Ry. M. Narasinga Rao Nayudu, Ranger, Fifth grade, was Senior Instructor while A. Neeladri Rao, Forester, Third grade was the Junior Instructor In this session, 24 students were trained of whom 5 were deputed from Bihar and Orissa. All the students were awarded certificates 10 having been placed in the first class and the remaining 14 in the second class. The conduct, discipline and health of the students were very satisfactory.

The first session of the subsidiary Vernacular Training School sanctioned in G.O. No. 979, Development, dated 1st July 1927, for training subordinates in the *Upper Godavari* division opened on 1st June 1928 and ended on 31st August 1928. M.R.Ry. T. M. Duraiswamy Pillai, Ranger, Fifth grade, the Instructor, carried out his duties commendably. Twelve students were trained and awarded certificates. The health of the students was uniformly good.

42. *Health of establishment and sanitation.*—The health of the establishment was as usual bad in the Agency tracts of the Circle, in Kukuluba and Bontha Ranges of *Ganjam* and in the Sriharikota Range of *Nellore*. Three forest guards in *Vizagapatam*, a Forester and a peon of the District Forest office, *Upper Godavari*, and a Forester and a Range Clerk in *Lower Godavari* fell victims to malaria.

CHAPTER VIII.—GENERAL.

43. *Formation and management of panchayats (to include the forest village system).*—All the ryots' forests in the Circle having been handed over to the Revenue Department, the formation and management of panchayats rests with that department.

The three reserves in *Lower Godavari*, viz., Kogida, Murari and Rameswaram mentioned in the last year's report were handed over to panchayats from 1st July 1928.

The forest village system is not in force in this Circle.

44. *Measures for improving local supplies and facilities (including water-supply, manure leaves, etc.).*—The wants of the people in the matter of small timber and fuel were met in all the divisions. There is no demand for manure leaves in the Circle.

As regards water-supply, the public were given permission to repair 18 kuntas in *Guntur*, and in *Nellore* ponds and tanks in grazing blocks were repaired by the department at a cost of Rs. 303.

45. *Timber transit rules.*—The rules are reported to have worked satisfactorily. In *Upper Godavari* the land transit rules were extended to the Bhadrachalam taluk.

In *Guntur* the transit rules were extended to Tenali, Repalle and Bapatla taluks.

The proposal to introduce timber transit rules in *Nellore* has been approved by the Chief Conservator of Forests and the draft rules will be submitted shortly.

46. *Jungle tribes—Ganjam.*—The Khonds continued to be on good terms with the department.

Vizagapatam.—The Hill tribes availed themselves of the privileges conferred on them.

An extent of 100 acres of land was given in the previous year free for cultivation to 20 families in Busilikota Settlement with a view to develop labour supply in the interior of the Sanivaram reserved forest. Three of the settlers are reported to have left the village when there were some casualties on account of smallpox. Full advantage has not yet been secured from this settlement.

Upper Godavari.—The Koyas and Peddis who form the chief source of labour supply continued to be useful and they were employed on all sorts of departmental works. Money rewards to the extent of Rs. 2,063 were disbursed to them during the year for successful fire protection. These tribes also enjoy the privilege of removing free, timber (except reserved trees), fuel and minor produce for domestic and agricultural purposes. In the Bhadrachalam taluk they enjoy the concession of free grazing and of poduing in unreserves.

Lower Godavari.—The settlers in the Agency tracts rendered help to the department in return for which they were allowed the concession of grazing their cattle at one anna per cow or buffalo. Rewards were also given to them for successful fire protection in Peddapur Range.

Guntur.—The question of granting to the Chenchus in Palnad Range lands in the reserved forests for cultivation with a view to settle them down has been reported on to the Chief Conservator after the close of the year (vide this office R.O.C. No. 1834-25-D, dated 26th July 1929).

Nellore.—The Yanadis in the Sriharikota Range continued to be employed on the departmental collection of minor forest produce and they earned Rs 3,375 during the year as wages; in addition a reward of Rs. 1,460 was granted to them in cash and kind. They appreciate the system of accumulating deposits in the Postal Savings Bank and the total amount of deposits of 70 accounts was Rs. 814 as against Rs. 756 in the previous year. It is reported that they know what is due to them for their minor forest produce collections and for their work, calculating to the nearest pie.

47. *Mining and quarrying.*—Mica mining is being carried on in some of the ryots' forests in *Nellore* which are under the control of the Revenue department. There are no mining operations elsewhere in the circle. In *Upper Godavari* the Public Works Department was allowed free quarrying of gravel in the reserves and unreserves, under the Agent's Standing Orders. In *Lower Godavari* a sum of Rs. 74 was realized on account of the removal of metal and gravel from reserves.

48. *Livestock—Elephants.*—A female elephant was purchased during the year at a cost of Rs. 4,005 at Sonepur in Bihar for use in the *Upper Godavari* division. The elephant by name Anarkali was escorted by a forester, a mahout and a cavadi. The distance to Kunavaram was 838 miles. The march lay through Bihar, the Orissa Feudatory States and the Jeypore Estate, and occupied 87 days. The total number of elephants at the end of the year was 3.

Other animals.—At the beginning of the year there were 16 buffaloes, 15 in *Ganjam* and 1 in *Nellore*. In Ganjam 3 died and 12 were sold owing to the stoppage of timber operations due to the closure of the Russellkonda Saw Mill. There was one buffalo at the end of the year.

49. *Veterinary establishment.*—The services of the Inspector of Livestock at Calicut were secured for the purchase of the elephant at Sonepur in November 1928.

50. *Wild animals—Ganjam.*—As usual tigers were a source of trouble round about Tarasingi and in the Agency. The man-eater which haunts the neighbourhood of Chandragiri has been inactive since November 1928. The District Forest Officer reports that it was wounded by a local shikari and has perhaps died of its wounds. However Mr. Minchin caught a glimpse of it in March 1929, a large animal with faded coat. Three proscribed rogue elephants in the same reserve are still at large but have not been in evidence of late.

51. *Civil suits—Lower Godavari.*—The plaintiff in the Naramamidi bark suit which was decided in favour of Government has appealed against the District Munsif's judgment and the result of the appeal is awaited.

Nellore.—The two suits filed by the ex-contractor Chenchuram Nayudu were decided in favour of Government by the Sub-Judge, *Nellore*. The contractor has appealed to the High Court.

52. *Control of unreserved lands by the Forest department—Upper Godavari.*—The unreserves in the division are under the control of the department. Departmental extraction of timber is done in the unreserves in the Nugur and Cherla Ranges.

Lower Godavari.—Some of the unreserves in the Agency portion of Yellavaram, Chodavaram and Polavaram divisions continued under the control of the department. In Peddapur and Gokavaram ranges five "special unreserves" were formed with a view to prevent podu and destruction of the growth in them by goats.

53. The relations between the Revenue and the Forest departments were cordial.

ENCLOSURE

REPORT ON EACH FOREST DISTRICT FOR 1928-29.

GANJAM.

Description.—The main seat of forest activity is in the Ghumsur and Surada taluks where extensive Sal forests have been long under close management. These forests supplied the Russellkonda Saw mills (1922—28) with timber. The three reserves in the Mohiri hills near the coast contain fuel and bamboos and are important as water catchment areas. The Eastern Ghauts known as the Maliahs occupy the western part of the district. Therein the forests of Bulliguda Agency form part of the District Forest Officer's charge since 1st July 1927. They are capable of producing fine sal but have largely been spoiled by the Khonds through their shifting cultivation (podu). The importance of these forests as a water catchment and as the source of large rivers is great. Parlakimedi Maliahs is a separate charge managed by a Special Forest Officer under the Agent to the Governor in Ganjam. The people there are Savaras and the forest blocks comprise 177 square miles; they have been notified under section 26. Figures relating to Parlakimidi Maliahs are not included in the figures which follow.

Area.—Reserved forests 625 square miles.

2. *How the forest district is split up into subordinate and executive charges.*—The whole division is divided into nine ranges consisting of 71 beats.

3. *Cost of administration*—

	RS.
Pay of officers	42,724
„ rangers	27,423
„ subordinates	41,682
„ clerical staff	17,411

4. *Cost under other important heads*—

Timber	22,539

52-*A. Capital Outlay.*

Roads—	
New works	1,183
Works in progress	216
Buildings—	
New works	53
Works in progress	1,618
Other works—	
New works	302
Demarcation	792

5. *Income from main sources—*

	RS.
Timber	79,723
Fuel—	
Forest department	35,368
Revenue department	6,964
Bamboos—Forest department	7,061
Grazing	9,353
Profits from Government commercial undertakings—Russellkonda Saw mill	44,929

6. *The chief work done in the forest district is—*

(i) in Ghumsur, the supply of timber (mainly sal) from four felling series, Sal poles from about eighteen felling series; fuel and bamboos;

(ii) in the Mohiri hills, supply of fuel and bamboos;

(iii) in the Maliahs, restriction of shifting cultivation (podu), to be followed by forest settlement, conservancy and general development by roads and buildings.

VIZAGAPATAM.

Description.—The Eastern Ghauts occupy a great part of the district and are malarious. These are the Agency tracts. The Palkonda forest range contains sal forest on the hills and on the plains. This is the southern limit of the species.

The plains portion of the district has numerous isolated hills and such of them as are reserved forests are densely clad with trees and contain felling series for small timber and fuel.

The Golgonda (Gudem) Agency is nearly all forest but much of it is as yet almost unknown country. In this tract the District Forest Officer is styled Special Forest Officer and works under the Agent to the Governor.

None of the forests either in the plains or the Agency has contour maps by the Survey of India and forest work has been greatly hampered in consequence. Figures relating to Golgonda Agency are not included in the figures which follow :—

Area—

	SQ. MILES.
Reserved forest	307
Reserved lands	2

2. *How the forest district is split up into subordinate administrative charges.*—The wholeforest division except Golgonda Agency Range is split up into two ranges consisting of 24 beats under eight sections.

3. *Cost of administration—*

	RS.
Pay of officers	8,986
,, rangers	4,103
,, subordinates	11,118
,, clerical staff	4,930

4. *Cost under other important heads—*

52-A. Capital.	Rs.
Roads and bridges—	
New works	—594
Works in progress	—206
Buildings—	
New works	1,317
Works in progress	120

5. *Income from other sources—*

Timber	9,487
Fuel	9,563
Bamboos	19,449
Other minor produce	9,713

6. *The chief work done in the forest district—Plains.*—Supply of small timber, fuel and bamboos to the population near the forests. Some fair sal timber is worked from Palakonda Range, where a new road system is being completed.

Golgonda Agency.—A start has been made to work out big timber for sale at Narasapatam (Vizagapatam district) and Yeleswaram (Godavari district). The small forest staff is concerned to restrict unauthorized shifting cultivation (podu) by hillmen.

Upper Godavari.

Description.—This forest division lies entirely in the Koya Agency on the left bank of the Godavari river. It contains many broken hill ranges. The elevation is from 200 feet to 3,900 feet. The tract is malarious. The forest is deciduous and contains teak, *Terminalias, Pterocarpus marsupium, Hardwickia binata, Xylia* and a few rosewood. Bamboos specially Dendrocalamus are very abundant in the south and east parts of the division. The river is the main line of communication with the outside world. The District Forest Officer's headquarters is Kunavaram, but he is permitted to spend six weeks in the year at Rajahmundry when his office also moves there.

Area.—Reserved forests 830 square miles. In addition about 370 square miles of unreserved lands are under the control of the Forest department.

2. *How the forest district is split up into subordinate administrative charges.*—The whole forest division is divided into six ranges consisting of 53 beats under 15 sections.

3. *Cost of administration—*

	Rs.
Pay of officers	9,904
„ rangers	21,196
„ subordinates	26,297
„ clerical staff	13,762
4. *Cost under other important heads—*	
Timber	13,220
Regeneration—	
Sowing and planting	982

52-*A. Capital.*

	Rs.
Roads and bridges—	
New works	390
Works in progress	527
Buildings—	
New works	1,879
Works in progress	4,264

5. *Income from main sources—*

Timber	1,02,589
Bamboos	30,816
Grazing	7,208

6. *The chief works done in the forest district are—*

(1) timber exploitation which is a new development since 1921;

(2) regeneration (*a*) by modified taungya, (*b*) naturally;

(3) reservation of additional timber bearing areas (about 68 square miles); and

(4) fire protection.

Bamboo coupes produce a good revenue.

LOWER GODAVARI.

Description.—Divisible into three zones—(*a*) the mangrove swamps of the Godavari Delta, (*b*) the central laterite belt containing mixed deciduous forests, (*c*) the Rampa Agency and the Papi hills (2,000 feet) containing timber and bamboos. Rajahmundry is the biggest market for timber and bamboos on the East coast.

Area.—Reserved forests 568 square miles.

2. *How the forest district is split up into subordinate administrative charges.*—The whole forest division is divided into five ranges consisting of 54 beats under 19 sections.

3. *Cost of administration—*

	Rs.
Pay of officers	13,601
„ rangers	11,880
„ subordinates	23,158
„ clerical staff	9,692

4. *Cost under other important heads—*

52-*A. Capital.*

Roads and bridges—	
Works in progress	225
New works	...
Buildings—	
New works	1,038
Works in progress	2,667
Other works—	
New works	299

5. *Income from main sources—*

	Rs.
Timber—	
Forest department	20,349
Revenue department	10,752
Fuel	73,273
Bamboos	63,070
Grazing	20,371
Other minor produce—	
Forest department	23,064
Revenue department	29,196

6. *The chief work done in the forest district.*—Supply through coupe contractors of about 10,000 tons of mangrove fuel to Cocanada town and port and other towns of the delta. Supply through coupe contractors of small timber, fuel and bamboos to Rajahmundry, Peddapur, Samalkota and other places in Rajahmundry and Peddapur taluks from a number of reserved forests in the plains and detached hills of those taluks. Rampa produces much timber, bamboos and minor forest products which are collected by hillmen and removed by purchasers from whom seigniorage is collected. Rampa bamboos find their way to all parts of the delta, to Kistna and even to Guntur. There are two teak felling series in Polavaram Range which supply Ellore and other markets, including Rajahmundry.

Introduction of teak in selected plots in Tirumalayapalem and Mallavaram reserves and in Ammayagoppu valley.

Guntur.

Description.—The division includes the whole of the Guntur and Kistna revenue districts. There is a belt of mangrove swamp forests along the coast. It supplies fuel and grazing. Fuel is taken to Bezwada, Tenali and Bundar and to big villages in Tenali, Repalli and Divi taluks.

The grazing grounds immediately to the west of the delta are managed by panchayats under the Revenue department.

The reserved forests in the Guntur district still further west and northwest are mostly on low hills and are worked for local supply of small timber, fuel and grazing. These forests are of great climatic importance.

The Kondapalli reserve in Kistna district is worked for small timber, fuel and bamboos for Bezwada (10 miles).

Area.—Reserved forests 910 square miles (612 square miles under Forest department, 298 square miles under panchayat management).

2. *How the forest district is split up into subordinate administrative charges.*—The whole division is divided into four ranges consisting of 55 beats under 16 sections.

3. *Cost of administration—*

	Rs.
Pay of officers	10,245
„ rangers	6,677
„ subordinates	28,613
„ clerical staff	10,279

4. *Cost under other important heads—*

52-*A. Capital.*

	Rs.
Buildings—	
New works	1,019

5. *Income from main sources—*

Timber—	
Forest department	750
Revenue department	1,306
Fuel—	
Forest department	37,548
Revenue department	13,932
Bamboos	7,628
Grazing	51,590
Minor forest produce—	
Forest department	8,182
Revenue department	18,478

6. *The Chief work done in the forest district.*—Fellings in the mangrove forests, in Kondapalli reserve and in the upland reserves in the taluks of Vinukonda, Palnad and Sattenapalle; regulation of grazing and protection of the forests (a very difficult matter).

Nellore.

Description.—This forest division lies in the revenue districts of Nellore and Chingleput. It comprises—

(1) *Sriharikota Island.*—The reserved forest is 25,317 acres of pure sand. It is densely wooded with dry evergreen species, e.g., Maba and Memecylon of no great size. The forest department restarted casuarina planting in 1929, by the seashore. There are many private plantations of casuarina in the island. There are no roads. Extraction of fuel is by tramways to the Buckingham Canal for the Madras market.

(2) Sathiavedu range (Chingleput district) consists of seven blocks of forest containing scrub jungle (dry evergreen). A part of the fuel yield is exported to Madras. The area is 51,012 acres.

(3) The hill ranges known as the Veligondas along the western boundary of Nellore where it adjoins Kurnool and Cuddapah. These forests are of climatic importance. They are distant from markets. They are not under felling at present. They require rest and conservancy.

Area.—Reserved forests 820 square miles.

2. *How the forest district is split up into subordinate administrative charges.*—The whole division is divided into five ranges consisting of 33 beats under 12 sections.

3. *Cost of administration—*

	Rs.
Pay of officers	9,617
„ rangers	10,221
„ subordinates	23,296
„ clerical staff	11,122

4. *Cost under other important heads—*

Purchase of stores	8,918

5. *Income from main sources—*

	RS.
Firewood—	
Forest department	60,093
Revenue department	5,969
Grazing	23,536
Other minor produce—	
Forest department	17,163
Revenue department	5,360

6. *The chief work done in the district.*—The chief activity is in Sriharikota Island where an area of 1,400 acres approximately is clear felled annually for fuel supplies to Madras.

Minor forest produce collection is important there especially of nux-vomica, soapnuts and tamarind. It is done for the department by the aboriginal tribe of Yanadis. In the Veligondas protection from man and conservancy are foremost. In the reserves in Chingleput district there are 19 fuel felling series for local consumption and for Madras. Sandalwood has been introduced on the Udayagiri and Kambakkam Hills.

SUMMARY OF PROGRESS DURING THE FIVE YEARS 1924-25 TO 1928-29.

1. The following is a summary of the progress made in forest administration in this Circle during the quinquennium ending 1928-29.

The important events in this Circle during the period under review were—

(1) The Kistna Forest Division was abolished from July 1924.

(2) With the abolition of the Third Territorial Circle and the constitution of the Working Plans Circle in its place from 1st May 1925, the Nellore Forest Division of the old Third and the Guntur Forest Division of the Second Circles were transferred to this Circle.

(3) Orders were passed on the reclassification of forests into provincial and ryots' forests In accordance with this classification all the ryots' forests except one in Lower Godavari were transferred to the control of the Revenue department.

(4) With the transfer of the ryots' forests six ranges were abolished, Sarvasiddhi in Vizagapatam, Ellore, Bezwada and Bandar ranges of the old Kistna Forest Division and Nellore and Kavali ranges of the Nellore district. A range called the 'River Range' was revived in Lower Godavari Division.

(5) A special officer of the rank of Extra Assistant Conservator was appointed in 1926 for the selection and demarcation of blocks for reservation in the Rampa Agency and work continues.

(6) A special officer of the rank of Extra Assistant Conservator toured in the Golgonda Agency of Vizagapatam and submitted a report on the forests in this tract in 1928.

(7) The Balliguda Agency in Ganjam was transferred from the control of the Agent to the District Forest Officer from 1st July 1927. Selection and demarcation of blocks for reservation are proceeding.

(8) The saw mill at Russellkonda, opened in February 1922, was closed on 10th July 1928. The mill was operated throughout by Messrs. Parry & Co., Madras, as managing agents. It was well managed and efficient. During its whole period of rather over six years, the volume of logs put through the saws was 969,474 cubic feet, mainly sal. It was all supplied departmentally. The outturn was 369,322 cubic feet of sawn timber which corresponds to a conversion percentage of 38·09. Total sales realized about Rs. 10,30,000 for some 352,300 cubic feet of sawn timber plus side slabs, etc. In the result the greatest part of the mature and over-mature sal trees in the Ghumsur sal forests which were in any way accessible with the existing road system were felled, to the great benefit of the forests.

The local timber and coupe contractors were all petty men without capital who could not exploit standing timber on the scale which was desirable.

2. *Administration and control.*—The following officers held charge of the Circle during the quinquennium under review:—

	From	To
Mr. D. T. Barry ...	1st April 1924 ...	7th May 1925.
Mr. A. A. F. Minchin.	8th May 1925 ...	2nd April 1926.
Mr. R. D. Richmond ...	3rd April 1926 ...	16th April 1927.
Mr. A. M. C. Littlewood.	17th April 1927 ...	9th November 1927.
Mr. D. T. Barry ...	10th November 1927.	6th June 1928.
Mr. F. R. Madan ...	7th June 1928 ...	31st July 1928.
Mr. J. H. Longrigg ...	1st August 1928 ...	31st March 1929.

3. *Changes in the controlling and executive charges.*—The Sathiavedu range of the old Chingleput district was transferred to the control of the District Forest Officer, Nellore. A portion of the Kothur reserved forest of North Cuddapah Division was transferred to Nellore.

The jurisdiction of the District Forest Officer, Guntur, extends in addition to the Guntur revenue district to the whole of the Kistna Revenue district and that of the District Forest Officer, Lower Godavari, in addition to a portion of East Godavari district to the whole of the West Godavari revenue district.

4. *Forest legislation.*—Nil.

5. *Hill tribes.*—The Khonds in Ganjam continued to help the department in the protection of forests in return for the concession of free removal of forest produce. In Vizagapatam, the hill tribes availed themselves of the privileges conferred on them. Land was given free for cultivation at five acres per family to develop labour supply in the interior of Sanivaram reserved forest. In the Godavaris, the Koyas and Reddis continued to help the department in carrying out works and in fire protection. Money rewards were granted to them for successful fire protection. In the Polavaram Agency of the Lower Godavari Division these tribes ceased to interest themselves in fire protection during the past two years and forfeited their rewards. In Nellore the Yenadis continued to be employed on the departmental collection of minor forest produce and their condition is improving.

6. *Changes in area.*—The total areas of reserved forests, reserved lands and leased forests at the beginning and end of the quinquennium are shown below :—

	Area at commencement of the quinquennium.	Area at the end of the quinquennium
	SQ. MLS.	SQ. MLS.
Reserved forests	4,012	4,059
Reserved lands	12	12
Leased forests	2	2

The increase under reserved forests was chiefly due to the transfer of the Sathiavedu Range of the old Chingleput Forest Division to Nellore.

7. *Further Reservation.*—Progress has been made in the selection of blocks for reservation in the Balliguda Agency in Ganjam and in the Rampa Agency in Lower Godavari. An area of 11 square miles was notified under section 4 in Rampa during the last year of the quinquennium. In Upper Godavari fifteen blocks of about 68 square miles of unreserves in the Bhadrachalam and Nugur taluks were selected for reservation and the preliminary demarcation of these blocks was progressing.

8. *Forest Settlement.*—The settlement of 11 square miles notified in Rampa during 1928-29 was pending at the close of the quinquennium. The settlement of 11 square miles pending at the end of the previous quinquennium was completed.

9. *Demarcation.*—The total length of boundary demarcated at the end of the quinquennium was 4,947 miles against 7,010 miles at the commencement. The decrease is principally due to the exclusion of the boundaries of Ryots' forests handed over to panchayats.

10. *Forest Surveys.*—The work done by the Survey of India during the quinquennium was—

1924-25.—Traversing the boundary between the Bastar State and the Nugur taluk in Upper Godavari to settle the boundary dispute. The disputed portion still remains to be settled. Survey of Bellamkonda and Venkatayapalem reserves in Guntur.

1925-26.—Survey of five reserved forests in Polavaram and Ellore Ranges in Lower Godavari.

1926-27.—Nil.

1927-28.—Special survey on 2 inches to 1 mile scale of Kondapalli Reserved Forest and its extensions in Guntur division.

1928-29.—Special survey on 2 inches to a mile scale of 6 reserves in Lower Godavari division and 13 blocks proposed for reservation in Rampa, covering an area of 116 square miles including overlaps. The work is continuing.

The Madras Survey Party traversed the external boundaries of mangrove reserves in Guntur and some of the reserves in Lower Godavari.

11. *Working Plans.*—No new Working Plans were sanctioned during the quinquennium except a revised Working Plan for Upputeru Block II in Lower Godavari. The area under Working Plans at the commencement of the quinquennium was 1,456 square miles while the area at the end of the quinquennium was 1,320 square miles. The decrease represents the areas of Reserved Forests under Working Plans which were handed over to panchayats and certain areas in Guntur division for which revised plans have been

taken up, the original plans having become obsolete. The revision of the Ghumsur Working Plan in Ganjam has been taken up by the Working Plans Conservator.

12. *Communications and Buildings.*—The average annual expenditure on new works during the quinquennium was Rs. 17,395. There were no works of any magnitude requiring special mention.

13. *Forest Offences.*—The average annual number of offences during the quinquennium under review was 5,515 against 5,372 in the previous quinquennium. The increase was about 3 per cent but it would have been greater had not the Ryots' forests been transferred to the panchayats in the latter part of the quinquennium.

14. *Fire Protection.*—The area attempted to be protected, the area burnt and the area actually protected during the quinquennium under review as compared with the previous quinquennium are given below:—

	Area attempted to be protected.	Area burnt.	Area actually protected.
	SQ. MLS.	SQ. MLS.	SQ. MLS.
Quinquennium ending 1928–29	1,504	177	1,327
Quinquennium ending 1923–24	2,144	173	1,971

The percentage of failure increased from 8 to 12 due to unfavourable fire seasons and to more complete and accurate reporting of forest fires. The decrease in the area attempted to be protected is due to the transfer of the Ryots' forests to panchayats.

15. *Protection from cattle.*—Goats were entirely excluded from reserved forests. The average area open to all animals except goats was 2,538 square miles against 2,594 square miles in the previous quinquennium. The decrease is due to the transfer of reserves to panchayats and to the closure of worked coupes to grazing.

16. *Yield and Outturn.*—The average annual outturn of major and minor produce is noted below:—

	Timber and fuel in thousands of	Bamboos.	Minor forest produce including grass and grazing.
	C. FT.	RS.	RS.
Quinquennium ending 1928–29	7,489	1,31,195	3,16,738
Quinquennium ending 1923–24	6,818	...	...

The increase in timber and fuel is due to fellings for Russellkonda Sawmills throughout the quinquennium, to the extraction of Sal timber in Vizagapatam and to the expanded working of fuel coupes in the Sriharikota Range of Nellore.

It has not been possible to compare the outturn under bamboos and minor produce with the previous quinquennium as figures for Guntur and Nellore districts separately for these years are not available.

17. *Financial results.*—The average annual financial results for the two periods were as follows :—

	Revenue.	Expenditure.	Difference.
	RS.	RS.	RS.
Quinquennium ending 1928–29	10,23,148	7,16,336	3,06,812 surplus.
Quinquennium ending 1923–24	8,70,907	7,79,337	91,570 surplus.

The greater surplus during the quinquennium under review is accounted for by better prices realized for forest produce generally and to an adjustment in 1928–29 of about Rs. 1,87,000 in Ganjam under 'Recoveries of Investments from Government Commercial undertakings' and 'Profits from Government Commercial undertakings' relating to Russellkonda Sawmill. The less expenditure is due to there having been no work involving large capital outlay as there was in the previous quinquennium in Ganjam.

18. *Forest Education—Madras Forest College.*—The one forester who was undergoing training at the end of the last quinquennium returned with a Higher Standard certificate, 10 foresters were deputed during the quinquennium under review, of whom 6 returned with Higher Standard certificates and 4 were at the College when the quinquennium closed.

19. *Vernacular Training School.*—A session of the Vernacular Training School was held regularly in Ganjam during the first four years of the quinquennium taking in all 130 foresters and forest guards. Of these two were removed, one owing to ill-health and the other for breach of discipline. Of the number trained, 16 belonged to Bihar and Orissa, 9 to the Orissa Feudatory States and 2 to the Court of Wards, Madras. The results of training were satisfactory. No school was considered necessary in 1929, for lack of men to be trained.

20. *Subsidiary Vernacular Training School.*—This was opened in Upper Godavari, the course being for three months for training foresters and forest guards of that division, especially in the operations peculiar to the division. The first session was held from 1st June 1928 to 31st August 1928 in which 12 students were satisfactorily trained.

WALTAIR,
3rd September 1929.

J. H. LONGRIGG,
Acting Conservator of Forests, I Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1929

SECOND CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. *Reserved forests.*—The total area of the reserved forests at the beginning of the year was 5,844 square miles and at the end of the year, 5,838 square miles, the difference being due to—

(1) the transfer of 1,171 acres of part of the Kothur reserve from *North Cuddapah* to Nellore (1st Circle) on grounds of administrative convenience,

(2) the disreservation of 24 acres in the *South Kurnool* for a Local fund road,

(3) the decrease of 1,342 acres in the Kaligara reserve (ryots' forest) of the *Anantapur* district owing to an error in the area previously adopted, and

(4) the disreservation of 707 acres in *Anantapur* and 354 acres in *Kurnool West*, for assignment to depressed classes for cultivation.

2. *Reserved lands.*—Nil.

2. FOREST SETTLEMENT.

3. Nil.

3. DEMARCATION.

4. No new demarcation was undertaken during the year.

Rupees 272 in *Kurnool East* and Rs. 292 in *Kurnool South* were spent on re-clearing boundary lines to a length of 38 and 62 miles respectively. In *Kurnool West* Rs. 278 were spent on the maintenance of boundaries of which Rs. 228 related to the re-clearing of the common boundary between *Kurnool West* and *Kurnool East*

from the Kistna river to Rollapenta. The frontier boundary (7½ miles) between the Banganapalli State and the British territory was also maintained at a cost of Rs. 18.

North Cuddapah spent Rs. 75 for re-clearing the district boundary between Cuddapah and Kurnool districts in the Nallamalais of Porumamilla Range.

Three thousand two hundred and twenty-four miles of boundary lines elsewhere in all the divisions were maintained by the beat subordinates free of cost.

4. Forest Surveys.

5. There was no survey either by the Survey of India or by the Madras Survey Party during the year.

Surveys of coupes, rectification of boundaries, preparation of coupe maps, etc., were done by the local forest subordinates.

The record copies of all maps were kept posted up to date.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of working plans.

(*a*) Preparation.

6. The total area under working plans and schemes at the beginning of the year was 1,069 square miles, to which was added an area of 1,507 square miles on account of the completion during the year of a single working plan for all the reserves comprised in each of the divisions of *Cuddapah North* and *Kurnool East*, the aggregate area under working plans and schemes at the close of the year being thus 2,576 square miles against 4,380 square miles of reserves under departmental control in the whole Circle.

7. The working plan for all the reserves in each of the *Anantapur* and *Cuddapah South* divisions reported, in the last annual report, as under preparation, was nearing completion at the close of the year. The Nallamalais of the *Kurnool West* division were inspected by the Conservator, III (Working Plans) Circle, during the year and, as a result thereof, an Extra Assistant Conservator was posted for the preparation of a working plan for these areas, and the field-work connected therewith was nearing completion at the close of the year. For the remaining area of reserves in the same division, comprised in the Yerramalais, the draft working plan prepared in the previous year was found faulty in many respects and the preparation of a more satisfactory plan, which involved some additional field-work, was undertaken at the close of the year under report.

In respect of the areas not covered yet by a duly sanctioned working plan in the *Kurnool South* division to which reference was made in the last annual report, the District Forest Officer was able to submit, only after the close of the year under report, a preliminary 'Working Plan reconnaissance report' on which orders have been passed for the preparation of a working plan on the lines indicated by the Conservator.

In all the divisions, however, the forests were worked during the year on the bases of working plans either already sanctioned or under preparation.

(*b*) Control.

8. The prescriptions of the working plans were generally adhered to and the annual control returns were duly submitted to, and reviewed by, both the territorial and working plan conservators.

For deviations, if any, from the authorized prescriptions, proper sanction has, as a rule, been obtained.

2. Communications and Buildings.

9. No new works costing over Rs. 5,000 were sanctioned during the year.

(*a*) *Roads and bridges.*

10. *New works.*—The only new work of the year was the construction of a road, 3½ furlongs, connecting the forest buildings at Ganjuvaripalle (*Kurnool East*) with the adjoining village road. The cost of construction including acquisition (Rs. 72) was Rs. 137. In *Kurnool West*, a sum of Rs. 416 was spent on blasting, in connexion with the widening and improvement of the Mantralakanama ghat road.

The total expenditure on new works during the year was Rs. 553 against Rs. 1,207 in the previous year.

11. *Maintenance.*—The aggregate length of all roads, cart-tracks and bridlepaths in the Circle, during the year, was 949 miles with a capital cost of Rs. 2,11,667, of which 234 miles were repaired during the year at a cost of Rs. 7,923 against 310 miles at a cost of Rs. 18,073 in the previous year.

The fall in expenditure was due generally to closer scrutiny of estimates and to confining the repairs to where they were really necessary.

12. The statement below shows the length of roads in each division, the length repaired during the year and the expenditure thereon :—

Division.	Length of roads in the division.	Length repaired.	Cost.
	MILES.	MILES.	RS.
Anantapur	55	21	1,050
Kurnool East	317	62	2,036
Kurnool South	122	67	1,547
Kurnool West	130	22	1,086
Cuddapah North	128	25	697
Cuddapah South	197	36	1,498

The fairly satisfactory state of repairs of all roads in the divisions has been certified to by the District Forest Officers after the close of the year.

(*b*) *Buildings.*

13. The expenditure during the year was Rs. 15,581 against Rs. 24,973 in the previous year.

Of this amount, Rs. 3,618 were spent on new works and Rs. 8,266 on repairs and maintenance against Rs. 9,536 and Rs. 15,437 respectively in the previous year. The establishment charges were Rs. 3,707 against Rs. 3,969 in the previous year.

14. The important items of new works were—

	RS.
Kurnool East.	
1. Construction of a stable and kitchen, with roofing of galvanized iron, for the rest-house at Rollapenta	559
Kurnool West.	
2. Construction of a latrine for the Range Officer's quarters—Sivapuram Range	116
3. Construction of an inspection shed at Abbarajakunta	160
4. Conversion of the old Range office buildings at Racherla into subordinates' quarters	99
Kurnool South.	
5. Construction of two-roomed stables for Giddalore and Chelama range quarters	210
6. Provision of chicks, etc., to the District Forest Officer's official residence	420
Cuddapah North.	
7. Tiling Kothabhavi forest rest-house	350
8. Part construction of subordinates' quarters at Balayapalle	350

Cuddapah South.

	Rs.
9. Acquisition of site for range quarters at Rajampet.	690
10. Completion of the rest-house with out-houses at Ankimadugu	344

15. There were 416 buildings valued at Rs. 4,25,027 on the books at the end of the year and their cost of maintenance (Rs. 8,266) was slightly under 2 per cent of the capital cost. That all the buildings have been kept in a fairly satisfactory state of repairs during the year has been certified to by the District Forest Officers.

(c) Miscellaneous.

16. Rupees 1,631 and Rs. 589 were spent on new works and repairs against Rs. 2,071 and Rs. 1,285 respectively in the previous year.

17. The chief items of works are—

	Rs.
Kurnool East.	
1. Trial boring for a well at Thummalabailu (part construction)	51
Kurnool South.	
2. Draw well (part construction since abandoned) at Basavapuram	53
3. Trial boring for a well at Sandrapodu	12
4. Construction of a loading platform and railway siding at Diguvametta	700
Kurnool West.	
5. Well in the Range office compound at Sivapuram ...	285
Cuddapah North.	
6. Tube well at Chinnalettipattibhavi (part construction)	257
Cuddapah South.	
7. Well in the compound of the proposed range quarters at Rajampet	219

18. There were 75 wells, etc., of a capital cost of Rs. 21,299 at the close of the year.

3. Protection of Forests.

(a) *General Protection.*

19. The annual report of last year included forest offences relating to reserves under panchayats also, but they have been excluded from the present report under the orders of the Chief Conservator.

20. The total number of offences reported during the year (in regard to reserves under departmental control and unreserves) was 3,684 against 4,452 in the previous year. There was no appreciable variation in the number of cases relating to unreserves and the decrease, which pertained to reserves, is contributed by all the divisions in the circle except *Cuddapah South*. The subjoined statement shows the offences reported during the year and in the previous year:—

Cases.	Injury to forests by fire.		Unauthorized felling.		Unauthorized grazing.		Other offences.		Total.	
	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.
A. Cases taken into Court.	5	1	562	397	173	133	49	35	789	566
B. Cases compounded.	5	3	2,321	2,012	749	573	221	209	3,296	2,797
C. Cases undetected ..	190	200	165	114	9	5	3	2	367	321
Total ..	200	204	3,048	2,523	931	711	273	246	4,452	3,684

21. The marked fall under unauthorized felling and grazing has not been explained by the District Forest Officers, but it seems possible that the fall in the former case is due to the opening of a large number of small timber and fuel coupes in the neighbourhood of villages during the year, generally in all the divisions. As regards unauthorized grazing the decrease is in *Anantapur* and *Kurnool East* and *West* divisions, while *South Cuddapah* claims an increase. The fact that Kurnool East and Kurnool West are the only divisions which show a fall in the grazing revenue collections during the year, in spite of a large decrease in the number of offences under unauthorized grazing recorded by them during the year, is perhaps suggestive of the possible inadequate supervision exercised by the protective staff of these divisions, over cattle grazing in reserves.

22. Except the District Forest Officers, *Anantapur* and *Cuddapah South*, who have inquired into a few forest offences, none of the others have made any test investigation. The percentage of offences investigated by officers has not been reported in all cases. Of those reported, *Anantapur* claims 10 per cent, *Cuddapah North* 20 per cent and *Cuddapah South* 12 per cent.

23. Of the 709 cases taken to court and disposed of by the magistrates, 453 cases ended in conviction and 256 in acquittal. Of these latter, 210 cases were acquitted on payment of compounding fees, 7 were withdrawn by District Forest Officers and 39 ended in acquittal after trial which is 6 per cent of the number of cases tried.

24. The total number of cases compounded was 2,776 and the compounding fees were Rs. 42,815 or an average of Rs. 15-1-11 per case, against Rs. 13-14-9 per case in the previous year. The increase in composition fees is specially marked in *South Kurnool* and the District Forest Officer attributes it to the imposition of deterrent punishments in a few cases that required them.

25. Rewards amounting to Rs. 178 were granted during the year to subordinates and to a village magistrate for the detection of forest offences against Rs. 645 in the previous year.

(b) Protection from fire.

26. With the exception of the fuel coupes (about six square miles) in the Yerramalais of *Kurnool West* which were protected by a system of fire-lines, all other reserves in each division were grouped under two main classes :—

(1) those to be brought under the system of early-burning, and

(2) those to be dealt with under general protection.

In each of these two classes of areas, the already existing fire-lines were fire-traced and maintained.

27. Early burning, as a measure of protection, against devastating late fires, was restricted during the year to 689 square miles against 2,422 square miles in the previous year. This reduction was mainly due to the fact that work could not be done satisfactorily over very large areas in the all-too-brief time available for the operation, and the operation was therefore confined to real danger zones including all worked timber and fuel coupes where the young crop was being smothered by grass and therefore in constant danger of being killed outright by late fires. The work was done under responsible supervision and on the whole it was carried out satisfactorily, the extent of late incendiary fires in the early-burnt portions being, however, about 18 square miles or under 3 per cent of the area dealt with. The average cost of the operation was Rs. 4-2-0 per square mile against Rs. 2-13-9 in the previous year.

28. For the special protection of about six square miles, comprised in the Yerramalais (Kurnool West) by a system of fire-lines, the cost was Rs. 35 or Rs. 5-15-0 per square mile, but about 12 per cent of this area was burnt by incendiary fires.

29. In the rest of the areas (3,691 square miles) all the old fire-lines were maintained. There was no expenditure in three of the divisions while in the other three, there was an expenditure of Rs. 1,186. The extent burnt in the areas falling under this class was 134 square miles or under 4 per cent.

(c) Protection against cattle.

30. The following table shows the areas opened and closed to grazing during the year under report and in the previous year :—

	1927-28.	1928-29.
	SQ. MILES.	SQ. MILES.
Closed to all animals—		
Whole year	283	245
Part of year	18	22
Open to all animals—		
Whole year	5,543	4,119
Part of year	...	22

31. In regard to areas closed to grazing there is a decrease in the *Anantapur* and *Cuddapah South* divisions due, in the former, to the opening of two reserves in the Bukkapatnam range to grazing, and in the latter, to the opening of some of the felled timber and fuel coupes, as in both cases closure was no longer needed.

The large decrease of 1,434 square miles in the areas opened to grazing is due to the exclusion of panchayat forests from the return, in accordance with Chief Conservator's orders.

32. The number of licensed cattle fell from 356,776 cow-units in the previous year to 332,962 during the year.

The decrease was contributed chiefly by *North and South Cuddapahs* and is explained to be due to the enhancement of grazing fees during the year. There was also some decrease in *Kurnool East and South.*

33. The number of cattle impounded was 23,694 against 30,987 in the previous year. There is a decrease in all the divisions except *Kurnool South and Cuddapah South* and it is due to the transfer to panchayats during the year of some of the reserves which still remained under departmental control during last year in the *Anantapur* and *Cuddapah North* divisions. The increase in *Kurnool South* and *Cuddapah South* has been reflected in the increased collection of grazing fees.

34. The following statement compares the revenue and incidence during the year under report with those of the previous year:—

District.	Grazing revenue.			Incidence-acres per cow unit.	
	1927-28.	1928-29.	Difference.	1927-28.	1928-29.
	RS.	RS.	RS.	ACS.	ACS.
Anantapur	29,782	32,665	2,883	4·05	3·20
Kurnool East	32,207	31,513	694	10·35	12·75
Do. South	16,040	16,865	825	12·73	8·81
Do. West .. .	37,458	36,882	576	7·90	8·40
Cuddapah North ..	27,883	30,742	2,859	5·90	7·5
Do. South ..	14,593	19,034	4,441	7·95	10
Total ..	*1,57,963	1,67,701	9,738	..	..

* Fodder grass excluded.

The net increase in revenue during the year is mainly due to the enhancement of grazing fees in *Cuddapah North* and *South* and to better collections in Bukkapatnam and Madanapalle ranges (*Anantapur division*).

(*d*) *Protection against injuries from natural causes.*

35. There were no operations under this head except the uprootal of Lantana in Horsleykonda reserve at a cost of Rs. 353.

CHAPTER III.—SILVICULTURE.

SECTION I.—AFFORESTATION AND REGENERATION OF FORESTS.

(i) *General progress of areas under regeneration.*

36. The year was generally a bad one for seeds, except for *Anogeissus latifolia*, the regeneration of which is reported to have been fairly good in all the divisions. The annual dying back of old established seedlings of the more important timber species, such as red sanders in the two *Cuddapahs* and *Dalbergia latifolia*, *Hardwickia binata*, teak and *Terminalia tomentosa* elsewhere has, as usual, been common, due very largely to want of seasonal rains and fires. The early burning of the grass amidst which the seedlings struggle for existence has not been altogether an unmixed blessing as the seedlings die back all the same after the early burning and they could not put up a vigorous growth at the next growing season unless cut back immediately after the early-burning. But the cutting back operation over extensive areas would not be a practical proposition. Speaking generally, it may be stated that the progress of natural regeneration of the important timber species in localities where the grazing incidence is very low or altogether absent has

been fairly satisfactory except in the *two Cuddapahs* and in *Anantapur* due in both cases to late fires. The same is the case in the protected (stone-walled) *Hardwickia binata* areas in the Yerramalais of *Kurnool West*. On the other hand, in the overgrazed areas of all the divisions and particularly in *Anantapur* and *Kurnool East*, the absence of natural regeneration is very marked. But the progress of regeneration from coppice has been satisfactory in all the divisions, except in parts of *Anantapur* where the rate of growth, in addition to being usually slow, has been retarded by frequent annual fires in coupes closed to grazing.

The established sandalwood in all the divisions has been making fairly satisfactory progress, though some damage has been caused by fires in certain localities in *Anantapur* and *Cuddapah South*. The result of the sandal sowings of the year under report has not unfortunately been satisfactory in all the divisions except in parts of *Anantapur* included in the Madanapalle range.

(ii) *Establishment of reproduction under working plans or schemes.*

(*a*) Mainly natural.

37. In all areas worked under simple coppice or coppice with standards, the regeneration from coppice continued to be satisfactory in all the divisions. In some of the first-felled areas dealt with under the system of clear-felling with natural regeneration in the Sirvel Nallamalais of *Kurnool South*, such natural regeneration as existed on the area before the felling could not outgrow the rank and tall growth of grass that covered the ground after the felling. Nor could any, but teak, coppice shoots from the felled stumps, put on a vigorous growth amidst the sea of grass that has taken possession of the ground after the felling. In the latter coupes where young poles of the valuable species have been retained to form part of the new crop after the clear-fellings, the ground is comparatively better covered with regeneration, though even here the young seedlings are often unable to make headway through the rank growth of grass.

In the *two Cuddapahs*, where the red sanders forests are worked under improvement fellings, the regeneration from coppice is very satisfactory but that from seeds is wholly inadequate owing largely to continued drought and fires. Moreover many of the small poles of red sanders left as standards are not good seeders. In the Nallamalais of *Kurnool South* and *Kurnool West*, the natural regeneration from seed of *Pterocarpus Marsupium* and teak, in the coppice with standards coupes, is particularly good, but they are hampered by grass.

(*b*) Mainly artificial.

38. No systematic efforts were made in the past at restocking blanks in any of the felled areas, in any of the divisions, either in the fuel or timber working circles. Towards the close of the year under report, however, a beginning was made to dump all the refuse resulting from the fellings, both in the timber and fuel coupes, in heaps or in lines, burn the rubbish and sow seeds of valuable species, indigenous to the locality, on the resulting ash. The result of these operations will be recorded in future reports.

In *Kurnool West*, stump planting of teak at a cost of Rs. 13 was carried out over about 10 acres of blanks in coupe VIII on the Gundlabrahmeswaram plateau, but the result was a failure owing, it is believed, to the lateness of the season when the planting out was done and to the absence of adequate rain after planting.

(*c*) Afforestation.

Nil.

(iii) *Plantation and other forms of regeneration not under working plans or schemes.*

39. A list of established plantations and of localities where cultural operations were carried out in the past is given in Form 34-B.

The teak plantations in *Kurnool East* and *Kurnool West* and the red sanders plantation at Kodur (*Cuddapah South*) are thriving. The mixed plantation of casuarina, *Sissoo*, *Pongamia glabra*, etc., of which all casuarina have been cut out in the past years, in Moka (*Anantapur division*), is also getting on fairly satisfactorily, though *Dalbergia Sissoo* in it is fast dying out. The larvæ of certain longicorn beetles suspected to be the cause of the death of *Dalbergia Sissoo* were identified at Dehra Dun and it was held that they could not be responsible for the death of the tree as they were not known to attack healthy trees. It is possible that climbers are the cause and for this reason systematic climber cutting is being prescribed in the working plan now under preparation. The plantations of yepi and margosa at Kupgal and Banavasi (*Anantapur division*) are practical failures as the trees could not put on any growth, except in parts of Kupgal where yepi is growing fairly satisfactorily and might be ripe for felling after about 10 or 15 years. The establishment of sandal in the past in suitable localities of which a list is given in Form 34-B has been attended with a fair amount of success, notably in the Madanapalle range (*Anantapur division*), and the established plants are thriving and the species is now spreading naturally though slowly. During the year,

systematic efforts were made to localize areas suitable for sandal in every forest guard's beat in all the divisions of the circle and to make it obligatory on all forest guards to establish each year at least 100 sandal plants over one acre as a labour of love. A large amount of work was accordingly done during the year but the result of the operations has not been recorded by most of the District Forest Officers in their annual reports.

Anantapur reports that out of 55 new propagation centres opened during the year for the establishment of sandal, as many as 10 failed owing to prolonged hot weather. In each of the remaining centres, an average of 50 established seedlings were obtained, those in Madanapalle range being far the best where, in some of the plots, as many as 200 established seedlings were obtained per acre. In addition to the establishment of these propagation centres through the unaided efforts of the beat staff, sandal seeds were dibbled in 2,200 patches in the lantana-cleared area in the Horsley-konda reserve at a cost of Rs. 9 but, due to late rains, the result was not satisfactory. A further attempt at putting out 950 transplants of sandal, raised in pots at a cost of Rs. 5, to replace some of the failures in the lantana-cleared area, resulted only in a 50 per cent success.

Cuddapah South reports that sandal seeds were dibbled in specially selected localities during the year in all the ranges and that a fair amount of success was obtained. The old established sandal elsewhere in the division are reported to be thriving.

Cuddapah North.—Forty-three one-acre propagation centres were opened for sandal, but the result of the dibbling was disappointing owing alike to the prolonged hot weather and to the lateness of the sowing. The sandalwood trees already established as a result of past efforts at Vaneswaram, Rollabodu, Kothabavi, Dasaraladoddi Kondagorlapenta, Kamativanibhavi and Kadikonabhavi are thriving.

(iv) *Tending.*

40. *Anantapur.*—A sum of Rs. 157 was spent for cutting noxious growth in improvement-felled coupes of Ganganapalle and Vempalle ranges to encourage the growth of the valuable species, and Rs. 50 for tending sandalwood in the Horsleykonda reserve.

Kurnool East.—In the old emergency coupes of Dornal and Turimella ranges, seedlings of the valuable species were tended over an area of 120 acres at a cost of Rs. 44.

Kurnool West.—The teak plantation of 1905-06 was thinned during the year at a cost of Rs. 40 and the produce of the thinnings was sold for Rs. 682.

Cuddapah South and Cuddapah North.—The young red sanders crop of the 1927–28 improvement coupes aggregating 1,419 acres was tended at a cost of Rs. 189 in *Cuddapah South*, while *Cuddapah North* spent Rs. 209 on the same work.

(v) *General.*

41. The teak at Kongamadugu, the mahogany at Kodur, Mogilipenta and Kongamamadugu, and the eucalyptus at Mogilipenta planted several years ago as an experiment and on a very small scale, are now thriving.

CHAPTER IV.—EXPLOITATION.

(*a*) System of Management.

(i) *Major Forest Produce.*

42. The total area under working plans or schemes was 2,576 square miles and the various sylvicultural schemes in force were as detailed below :—

Sylvicultural system.	Area in square miles.			Percentage to the total area under working plans and schemes.
	Under working plans.	Under working schemes.	Total.	
	SQ. MILES.	SQ. MILES.	SQ. MILES.	
Clear-felling with natural regeneration ..	39	..	39	1·5
Simple coppice	142	..	142	5·5
Coppice with standards	313	30	343	13·3
Improvement fellings	135	11	146	5·3
Selection fellings	413	33	446	17·7
Selection cum improvement	4	..	4	0·2
Improvement cum-clear-felling	9	..	9	0·4
Miscellaneous (areas worked for grazing, minor forest produce, etc.) ..	1,375	72	1,446	56·1
Total ..	2,430	146	2,576	100·0

Steady progress is being made to bring the remaining areas of reserves under definite working plans.

43. The areas worked during the year under the different sylvicultural systems are detailed below :—

Timber.—Clear-felling with natural regeneration under the high forest system was confined to 392 acres of the Sirvel Nallamalais in *Kurnool South*, while a system of *improvement felling* to be followed, at the end of five years, by clear-felling, after establishing, in the meanwhile, an adequate amount of regeneration both by natural and artificial means, was carried out over 221 acres in *Kurnool East.* The red sanders forests in the Ganganapalle and

Vempalli ranges of the *Anantapur* division, were, as usual, worked under *improvement fellings*, an extent of 1,091 acres in *Cuddapah North*, 2,887 acres in *Cuddapah South* and 374 acres in *Anantapur* having been dealt with in that way during the year.

The method of *selection fellings* was adopted for the *Hardwickia binata* areas in *Kurnool East*, restricting the removal to dead and dying trees over an area of about 4,000 acres. A similar system, confining the removal to mature and dead and dying timber trees in the bamboo areas of *Kurnool East* and *Kurnool South* was followed, the area gone over in the former being 106 acres and in the latter 734 acres. In *Kurnool West* an area of 102 acres was worked under *coppice with standards*. The timber working circle in the Chelama range of *Kurnool South* was worked under the same system (coppice with standards), an aggregate extent of 1,141 acres having been dealt with in the year for supply of fuel and timber.

In addition to the above, about 100 acres of mixed timber forest, of which teak was predominant, were thinned in *Kurnool South* which provided some small timber to meet local requirements.

To meet the demand of the slate industry at Markapur, 740 acres in *Kurnool East* and 731 acres in *Kurnool South* were worked for the supply of soft-wood under the selection system based on girth limit for selected species, mostly *Givotia rottleriformis*.

Fuel.—Under *simple coppice*, an area of 181 acres in *Kurnool East*, 86 acres in *Kurnool South* and 553 acres in *Cuddapah North* was worked over, while under *coppice with standards*, the area dealt with was 310 acres in *Kurnool West*, 185 acres in *Cuddapah North*, and 757 acres in *Cuddapah South*.

44. *Fellings not under Working plan.*—In addition to the above, coupes were located in reserves, not yet under working plan, for the supply of fuel, and small timber to the villagers bordering on reserves, in the *Anantapur*, *Kurnool South*, *Kurnool West* and *Cuddapah South* divisions, with a view chiefly to test the market before a definite working plan could be framed for these areas. Thus, 41 acres under *improvement fellings* for small timber, and 624 acres under *simple coppice* for fuel in *Anantapur* were worked. One hundred and ten acres under *selection fellings* at Isukagundam, 448 acres under *coppice with standards* and 177 acres under *simple coppice* were exploited for timber and fuel in *Kurnool South*. In Kurnool West, an area of about 450 acres in the Terai forests of the Nallamalais was worked for timber and fuel under the method of *coppice with standards*, while in *Cuddapah South* the area worked for timber under coppice with standards was 184 acres, and for fuel under *simple coppice* was 538 acres.

In addition to the above, the collection of the timber of *Canthium didymum* for the manufacture of hair combs was, for the first time, leased during the year for Rs. 4,000 in *Cuddapah South.*

The collection of timber from windfalls (result of the cyclone of November 1927) from all the accessible areas of reserves in the two *Cuddapahs* and in *Kurnool South* has also helped to increase the output of timber during the year.

45. The total output of timber was 414,000 cubic feet and of fuel 4,400,000 cubic feet from both the working plan and non-working plan areas of reserves in the Circle.

(ii) *Minor Forest Produce (including bamboos).*

46. Bamboo coupes were, as in the previous year, leased out to contractors, in all the divisions. The collection of minor forest produce was also effected through lessees during the year in all the divisions with satisfactory results. There was practically no demand for nux vomica. It could be sold in only three ranges in *Cuddapah South* and in one range in *Anantapur* for comparatively low amounts. Tangedu bark, an important item of minor forest produce, in the reserves and unreserves of *Anantapur* was leased out for a period of two years. Similar two-year leases were sanctioned in *Kurnool East* and *Kurnool South.* Rela bark which was not sold in the previous year in *Kurnool South* was sold during the year. The long-term leases of slab quarries in *Kurnool West* continued. The right to collect 'Narmamidi' bark (Litsea polyantha) from the reserves of Balapalle and Chitvel ranges (*Cuddapah South*) was for the first time, leased out during the year.

Grass.—Free removal of fodder and thatch grass in head loads in all the divisions and in cart loads also in the Cuddapah district from reserves was continued. The proposal to prohibit free removal in cart loads from the reserves of the Cuddapah district was not sanctioned by the Government. A nominal fee of annas five per cart load was levied for removal in cart loads in *Anantapur* and the three *Kurnool* divisions.

Manure leaves.—One hundred and ninety-two cart loads in *North Cuddapah* and 572 cart loads in *South Cuddapah* were removed during the year at Re. 1 per cart load. Removal was allowed in the other divisions of the Circle at Rs. 2 per cart load but the demand was not appreciable.

Grazing.—This was as usual controlled by permits, a single permit being tenable for a whole range. In Cuddapah, the enhanced rate of annas six per cow-unit was given effect to during the year. Orders of Government have not been received on the unification of grazing fees referred to in the last report.

(*b*) AGENCY OF EXPLOITATION.

(i) *Departmental Agency.*

(1) Major Produce.

47. Departmental operations were confined practically to timber and a few fuel coupes in *Kurnool* where, however, the contract system was introduced with success after the close of the year. About half a ton of sandalwood was extracted from the Kodur Red Sanders plantation through departmental agency. Compared with the previous year, the outturn of timber during the year shows a decrease of 16,000 c.ft. and of fuel an increase of 151,000 c.ft. The decrease in the output of timber extracted through departmental agency is due in *Kurnool South* to the actual yield having fallen considerably short of the anticipated quantities in the coupes of the year, and in *Kurnool West* to the stoppage of timber fellings in the Gundlabrahmeswaram plateau, pending the preparation of a working plan. In *Kurnool East* the system of modified improvement felling to be followed at the end of five years by clear-felling, accounted for the poor outturn of timber during the year.

There was an increase, however, in the outturn of timber (29,000 c.ft.) in *Cuddapah North* due to the collection and sale of wind-fallen timber.

The increase in the outturn of fuel has been contributed chiefly by *Kurnool West*, though much of the year's outturn remained undisposed of in the coupes at the close of the year owing to transport difficulties.

(2) Minor Forest Produce.

Beyond the collection of some quantity of bamboos and thatch-grass for departmental works, and of seeds of timber species for sowing in regeneration areas, no other collection of minor forest produce was made departmentally, as the right to collect minor forest produce in all the divisions was leased to contractors.

(ii) *By Purchasers.*

48. All the timber and fuel coupes in the two *Cuddapahs* and *Anantapur*, and most of the timber and all the fuel coupes in *Kurnool South*, all the fuel coupes in *Kurnool East* and most of the timber cum fuel coupes in *Kurnool West* were leased out to contractors.

All the bomboo coupes and the right to collect minor forest produce in all the divisions were also similarly leased out.

(iii) *Free Grantees.*

49. Free grants were made in all divisions both from reserves and unreserves chiefly to rebuild houses destroyed by accidental fire.

The following statement shows the quantity and value of free grants made during the year:—

Timber.		Fuel.		Bamboos.		Grass and grazing.	Other minor forest produce.	Total.
In thousands of cubic feet.	Value.	In thousands of cubic feet.	Value.	Number.	Value.	Value.	Value.	Value.
	Rs.		Rs.		Rs.	Rs.	Rs.	Rs.
28	6,802	2	45	8,044	185	71	* 121	7,224

* Includes cost of metal, gravel, etc., removed by local boards and for minor irrigation works.

There is a decrease under timber, as compared with last year, and this was chiefly in *Cuddapah* where large grants were made on account of damages by cyclone in the previous year.

(iv) *Rights and Privileges.*

50. The Chenchus in the *three Kurnools* continued to avail themselves of the concessions granted to them at the Forest Settlement, viz., free removal of timber for their huts; of minor forest produce for their own *bona fide* purposes and of free grazing in respect of their own cattle including goats. The number of cattle that actually grazed is more than that admitted at settlement, and this and other allied matters were under investigation at the close of the year. The settlers at Chelama, Diguvametta and Isukagundam continued to enjoy the privilege of free grazing in respect of their cattle under the terms of the licences issued to them for settling in Forest reserves. The grazing concessions detailed in the 1927-28 annual report in the *North* and *South Cuddapah* divisions continued to be in force during the year.

(c) SUMMARY OF OUTTURN AND SOURCES OF DIFFERENT KINDS OF FOREST PRODUCE.

51.—

Agency of exploitation.	Timber in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos—value.		Minor forest produce and grazing—value.	
	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.
					Rs.	Rs.	Rs.	Rs.
Government ..	104	88	204	355	2,143	889	2,047	613
Private agency ..	570	655	5,426	4,739	61,841	65,759	4,72,843	5,61,312
Free grantees ..	47	28	..	2	247	185	197	192
Rights and privilege holders.	..	..	1	..	1	75	3,639	3,697
Total ..	721	771	5,631	5,096	64,237	66,908	4,78,726	5,65,814

52. *Departmental Agency—Timber.*—The decrease was generally in all the three Kurnool divisions and particularly in *Kurnool West* where the contract system replaced the departmental extraction hitherto in force.

Fuel.—The increase is mainly in *Kurnool West* owing to the bringing in of additional areas under felling during the year to meet the steadily increasing demand for fuel.

Bamboos.—The decrease was chiefly in *Kurnool East* due to the leasing out of certain bamboo coupes which till the previous year were worked departmentally.

Minor forest produce.—The decrease is due to the replacement of departmental working by contractors.

53. *Private Agency—Timber.*—There was an increase, as compared with the previous year, of 61,000 c.ft. in the outturn of timber from reserves and 21,000 c.ft. from unreserves. The increase in reserves was contributed by the *three Kurnools* and also by *Cuddapah South* where comparatively large areas were leased out during the year, on the basis of the working plan now under preparation.

Fuel.—There was a decrease of 333,000 c.ft. relating to reserves and 254,000 c ft. to unreserves. The decrease in the latter case was due to the abnormal increase of fuel from unreserves in 1927–28 owing to the cyclone which had uprooted hundreds of trees in unreserves in the *Cuddapah* and *Kurnool* districts. The big drop in the outturn of fuel from reserves worked through lessees has been contributed by *Kurnool South* where, on account of the prohibitive cost of transport, the lessees of several of the timber cum fuel coupes of the year are reported to have left the fuel extracted by them to perish in the coupes rather than incur wasteful expenditure on placing the stuff on the market.

Bamboos.—The variation is small and does not call for comments.

Minor forest produce and grazing.—There was an increase of about Rs. 8,000 under grazing and of Rs. 80,000 under minor forest produce. The increase in grazing is contributed by the two *Cuddapahs* and *Anantapur*, due in the former to the enhancement of grazing fees during the year. The credit for the increase in minor forest produce goes to *Anantapur* where, on account of keen competition among bidders, almost record prices were obtained for the lease of *Tangedu* bark.

54. *Rights and privileges.*—No variations.

CHAPTER V.—FINANCIAL RESULTS.

55. The financial results of the year under report are compared with those of the previous year for the whole Circle in the following abstract:—

Details.	1928-29.	1927-28.
Receipts.	RS.	RS.
Revenue	* 9,46,905	9,02,760
Deduct refunds	2,367	2,172
Net ...	9,44,538	9,00,588
Expenditure.		
8. b. Conservancy and Works ...	88,966	1,03,037
52-A. Capital outlay	6,229	13,471
Total ...	95,195	1,16,508
8. c.i. District Establishments ...	4,21,947	5,00,820
Grand total expenditure ...	5,17,142	6,17,328
Surplus ...	+ 4,27,396	+ 2,83,260

56. During the year the gross revenue increased by Rs. 44,145 and the total expenditure decreased by Rs. 1,00,186 resulting in a surplus of Rs. 1,44,136 over that of the previous year.

The percentage of the several items of Revenue and Expenditure is noted below in a comparative form :—

Items.	1928-29	1927-28
Receipts.	PER CENT.	PER CENT.
Major produce—Forest department ...	21·2	19·5
Do. Revenue department ...	6·1	9·3
Bamboos—Forest department	6·7	7·3
Grass and grazing—Forest department ...	17·5	17·7
Minor produce—Forest department ...	5·8	7·4
Do. Revenue department ...	33·4	27·4
Other items—Forest department ...	9·3	11 3
Expenditure.		
8. b. *Conservancy and works and 52-A. Capital outlay*—		
Exploitation of forests	57·9	42·2
Upkeep and improvement of forests ...	41·5	56·9
Miscellaneous items	0·6	0·9

* Excludes Rs. 848 credited in IV Circle.

57. The important variations under 'receipts' and 'expenditure' are explained below :—

Major Produce—Forest Department.

The increase was under 'timber and fuel' by purchasers--

	RS.
Timber	+32,033
Fuel	+15,423

Timber.--All the divisions except *Anantapur* contributed to the increase as shown below :—

	RS.
Kurnool East	+ 1,400

Due to the replacing of the departmental fellings by the system of leases as per prescriptions of the new working plan in advance of its sanction.

	RS.
Kurnool South	+ 6,707

Due to the adjustment of the revenue from timber cum fuel coupes wholly to the head 'timber' unlike as in the previous year when it was apportioned between 'timber' and 'fuel'.

	RS.
Kurnool West	+12,682

Due to the leasing out of the coupes which were originally intended to be felled departmentally.

	RS.
Cuddapah North	+ 3,656

Due to the better prices fetched during sales than in the previous year.

	RS.
Cuddapah South	+ 8,927

Due to the leasing out of 29 coupes of 3,063 acres against 21 coupes of 2,440 acres in the previous year.

Fuel.—The increase was mainly in *Kurnool West* and *Cuddapah South* divisions as shown below :—

	RS.
Kurnool West	+ 1,882

Due to the leasing out of the coupes which were intended to be worked departmentally.

	RS.
Cuddapah South	+15,051

Due to the leasing out, under the provisions of a working plan now under preparation, of a larger number of coupes during the year, viz., 13 coupes of 1,295 acres against 6 coupes of 435 acres in the previous year.

Major Produce--Revenue Department.—The decrease was mainly under 'firewood and charcoal' (Rs. 25,148) and it has occurred in all the divisions. This is due to the fact that the realizations in 1927-28 were unusually high on account of the sale of a large number of wind-blown and cyclone-damaged trees.

	Rs.
Bamboos—Forest Department	— 2,037

The fall was chiefly in *Kurnool West* due to the adjustment to revenue of the earnest money deposits of 1928-29 leases in 1927-28 itself.

	Rs.
Minor produce –Forest Department	— 9,540

The decrease occurred wholly in *Anantapur* division (Rs. 9,717) in spite of better prices obtained for tangedu leases; this is due to the fact that the revenue was not apportioned correctly between reserves and unreserves in the previous year.

	Rs.
Minor produce—Revenue Department ...	+ 68,886

All the divisions except *Cuddapah South* contributed to the increase as explained below :—

	Rs.
Anantapur	+ 49,210

Due mainly to the better prices obtained for 'tangedu' leases and also partly to the more correct apportionment, during the year, of revenue between reserves and unreserves resulting in a comparatively larger revenue going to the credit of unreserves, as explained under minor produce (Forest Department).

	Rs.
Kurnool East	+ 4,147

Due to the adjustment of the full lease amounts of tangedu bark for two years (1928-30) in 1928-29 itself.

	Rs.
Kurnool South	+ 630

The variation is small.

	Rs.
Kurnool West	+ 14,943

Due partly to better prices obtained in the sales of minor forest produce and also partly to larger realizations on account of tree tapping fees from unreserves.

	RS.
Cuddapah North	+ 1,126

Due to the apportionment, during the year of the revenue between reserves and unreserves unlike as in the previous year when the whole amount was credited to reserves.

	RS.
Other items—Forest Department	— 16,589

The fall was entirely under 'E-4'. Other sources (Rs. 16,766) and it was mainly in *Anantapur* division (Rs. 14,365) due to the adjustment in 1927–28 of the book-value of certain forest buildings transferred to other departments.

EXPENDITURE.

8. *b. Conservancy and Works and* 52-*A. Capital outlay.*

	RS.
Exploitation of forests	+ 7,108

This increase was brought about by an increased expenditure of Rs. 20,948 under 'Forest produce removed by private agency' due to the debiting of the pay of the surplus forest guards styled watchers to this head, and by a reduction of Rs. 13,840 under 'Government Agency' on account of the restricted expenditure on departmental fellings during the year.

	RS.
Upkeep and improvement of forests	— 27,801

This reduction was effected mostly under '8. *b.* Conservancy and works' (Rs. 20,559) and also to some extent under '52-A Capital outlay' (Rs. 7,242) as detailed below :—

8. *b. Conservancy and works.*—Due to the curtailment of expenditure under—

(i) roads and bridges,
(ii) buildings,
(iii) fire protection and
(iv) other works.

A considerable saving was effected under 'Early-burning' by confining the operations exclusively to real danger zones and to localities where they could be carried out effectively by the staff. Reduction of expenditure was also secured to some extent by a closer scrutiny of estimates and by permitting expenditure on a well-defined basis without any sacrifice of efficiency.

52-*A. Capital outlay.*—Due chiefly to the undertaking of a smaller building programme during the year, i.e., only 10 items of new works costing Rs. 3,618 were executed against 26 items costing Rs. 9,536 in the previous year.

	RS.
8. 'c.' (i) District establishments	— 78,873

The decrease was chiefly under—

(i) Pay of officers—Voted in *Kurnool East, Kurnool South and North Cuddapah* and

(ii) Pay of establishments in all divisions due to the introduction of the beat system with one forest guard and one watcher for each beat instead of two forest guards and to the reduction in the cadre of foresters and to the debiting of the pay of surplus forest guards styled watchers to '8. *b*. Conservancy and works'.

58. The financial results of each division are dealt with below taking into account the 'Direction' charges apportioned to the district:—

ANANTAPUR.

	1928-29.	1927-28.
	RS.	RS.
Receipts	3,72,724	3,50,883
Charges	77,699	93,382
Surplus	2,95,025	2,57,501

This is the only division in the circle which, as usual, has contributed largely to the surplus of revenue over expenditure for the whole circle. The increase of Rs. 21,841 in the gross revenue, during the year, was chiefly due to better prices obtained for tangedu leases. The various items which contributed to the gross receipts are detailed below:—

	Per cent.
Major produce—Forest department	2
,, Revenue department	10
Grazing revenue—Forest department	9
Minor produce—Forest department	2
,, Revenue department	71
Other items—Forest department	6

The decrease of Rs. 15,683 under charges was almost wholly under Establishments due to the reasons already stated under District Establishments for the whole circle.

KURNOOL EAST.

	1928-29.	1927-28.
	RS.	RS.
Receipts	62,538	67,883
Charges	77,867	86,574
Deficit	15,329	18,691

The deficit is less than that of the previous year by Rs. 3,362 due to a large decrease of Rs. 8,707 under Expenditure which was due to reduction of staff.

The percentage of the several items of revenue was as follows :—

	Per cent.
Major produce—Forest department ...	15
,, Revenue department ...	1
Grazing—Forest department	45
Minor produce—Forest department ...	8
,, Revenue department ...	9
Bamboos—Forest department	6
Other items—Forest department	16

KURNOOL SOUTH.

	1928-29. Rs.	1927-28. Rs.
Receipts	1,28,188	1,24,083
Charges	85,338	1,12,630
Surplus	42,850	11,453

The surplus of Rs. 31,397 over that of the previous year was due to the reduction effected under Expenditure both under '8. *b*. Conservancy and works' and 8. *c*. (*i*). District Establishments. The decrease under the former head was due to the restricted expenditure under Departmental fellings and Roads and Bridges and that under the latter head was due to the reduction of staff.

The bulk of the revenue, about 44 per cent, was obtained from major produce, Forest department, and 23 per cent from bamboos (Forest department), 15 per cent from grazing, 14 per cent from the remaining items (Forest department) and only 5 per cent from Revenue department (Major produce 2 per cent and minor produce 3 per cent).

KURNOOL WEST.

	1928-29. Rs.	1927-28. Rs.
Receipts	1,79,234	1,75,260
Charges	98,448	1,17,191
Surplus	80,786	58,069

The net receipts of the year showed an increase of Rs. 22,717 over those of the previous year as the result of an increase of Rs. 3,974 under gross revenue and a decrease of Rs. 18,743 under expenditure which was effected both under 8. *b*. Conservancy

and works (Departmental fellings and Roads and Bridges) and 8. *c.* (*i*). District Establishments, for reasons already explained.

Of the gross receipts—

21 per cent was derived from grazing.
19 „ „ „ major produce (Forest department).
18 „ „ „ minor produce (Revenue department).
15 „ „ „ minor produce (Forest department).
10 „ „ „ bamboos (Forest department).
12 „ „ „ other items (Forest department).
5 „ „ „ minor produce (Revenue department).

CUDDAPAH NORTH.

	1928-29.	1927-28.
	Rs.	Rs.
Receipts	84,466	87,410
Charges	86,640	1,02,854
Deficit	2,174	15,444

There was a substantial improvement in the working of this division during the year as the deficit was reduced by Rs. 13,270 on account of a large reduction of Rs. 16,214 effected under charges which were mainly under Roads and Bridges, and Pay of Establishments for reasons already stated and also to some extent under 'Capital outlay—Buildings'—due to the construction of some pucca buildings in the previous year for which there was no necessity during the year.

Even the present deficit of Rs. 2,174 would have been wiped out, had it not been for the expenditure of Rs. 7,170 on account of holding the Vernacular Training School in this division.

The chief sources of revenue were from grazing (36 per cent) and major produce (35 per cent of which only 4 per cent was from unreserves) and the remaining 29 per cent was derived as follows:—

	Per cent.
Bamboos (Forest department)	6
Minor produce (Forest department)	6
„ (Revenue department) ...	4
Other items (Forest department)	13

CUDDAPAH SOUTH.

	1928-29.	1927-28.
	Rs.	Rs.
Receipts	1,17,388	95,069
Charges	91,150	1,04,697
Difference	+ 26,238	— 9,628

The division worked at a profit unlike as in the previous years. This was the result of an increase in gross revenue and a decrease in charges. The increase in the revenue was contributed chiefly by

(i) 'Major produce'—By purchasers—

'Timber and fuel', on account of the lease of a large number of coupes, during the year, as explained already under 'Major produce —Forest department' for the whole circle, and

(ii) 'Grazing', due to the enhancement of the rate of grazing fees from three annas per cow-unit to six annas per cow-unit during the year under report.

There was a reduction, of Rs. 13,547 under charges, which was effected mainly under (i) "8. *b*. Conservancy and works—Roads and Bridges and Buildings; and (ii). 8. *c*. i. District Establishments—'Pay of establishments' for reasons already explained.

Of the total revenue, major produce brought in 60 per cent (of which only 1 per cent was from unreserves)—

Grazing	16	per cent.
Bamboos (Forest department)	6	,,
Minor produce (Forest department) ...	5	,,
,, (Revenue department) ...	6	,,
And other items (Forest department) ...	7	,,

It will be observed from the above that all the divisions in the circle except *Kurnool East* and *Cuddapah North* have worked at a profit during the year.

59. The outstanding revenue at the close of the year was Rs. 3,45,882 of which Rs. 2,07,482 fell due after 31st March 1929, being the lease amount of coupes and minor produce leases.

60. The estimated value of timber and other produce in the sale depots at the close of the year was Rs. 920 against Rs. 14,639 at the commencement of the year.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

Research.

Nil.

Experiments.

61. *Anantapur*.—The sample plots in Kupgal and Banavasi plantations opened in 1923 under Chief Conservator's instructions to determine whether the cutting back of the stunted *Nim* and *Hardwickia* trees and the working of the soil would improve their growth

were kept up at a cost of Rs. 1-8-0 during the year, but the result proved disappointing and the experiment has been therefore ordered after the close of the year to be given up.

Experimental sowing of tangedu was continued during the year, over a further extent of ten acres in the Gunda reserve, the seeds being sown, in June 1928, in furrows 2½ feet to 4 feet apart from each other. Germination does not appear to have started earlier than a month and the resulting seedlings were found to be 1 to 2 feet high in November 1928, the percentage of germination of the seeds and the height put on by the resulting seedlings being proportional to the amount of soil preparation carried out.

The clear-cutting (coppicing) of tangedu bushes (410 in number), in the Bandri reserve in July 1928 resulted in shoots coming up all right but their height growth was only 3 to 6 inches when inspected in October 1928.

62. *Cuddapah North.*—The sample plots in the Sancherla Fuel Series opened in the year 1921 with a view to find out the effect of weeding on the growth and development of yepi seedlings were continued to be maintained during the year but no details of measurements are contained in the district report; but it is apparent that no conclusions can be drawn yet. It is, however, significant that, in spite of more than seven years of protection of the weeded and unweeded plots by a stone wall, no increase in the quantity of natural seedlings on the area has resulted, though mother trees of yepi are present in and round the plots.

The sample plot in Jothi Improvement Series, measuring one-tenth of an acre, which was opened in the year 1922 to ascertain the annual incremental height growth of natural red sanders seedlings under weeded condition, has been ordered to be abandoned, owing to the inaccessibility of the plot and to the difficulty experienced in keeping it perpetually weeded throughout the year and year after year. It was, however, observed, during the Conservator's inspection of the plot in February 1929, that the average height of seedlings, which at the commencement of the experiment was 16 inches high, was 3 feet 3 inches high in February 1929.

Manufacture of Cutch.—It was stated in the last year's report that the Deputy Forest Utilization Officer, who has studied the manufacture of cutch, had suggested a further experiment on a very small scale in December 1928 in order to discover if the manufacture of cutch in the cold season would help the solidification and hardening of the stuff. This was carried out in December 1928 and January 1929 at a cost of Rs. 8 with the result that 68 balls of cutch weighing 37 lb. were manufactured from a few comparatively bigger trees of *Acacia sundra* of 24 inches to 36 inches in girth. The

cutch on this occasion solidified all right, but showed a tendency to flatten out in the course of drying. It was, however, of better quality but, even so, no market could be found for it. A sample of the heartwood of a freshly cut and sufficiently big tree was therefore sent to the District Forest Officer, Mangalore North, after the close of the year, to find out what the cutch would be like if it were extracted by experts in that division, so that any defect in the manufacturing process might be set right if there was nothing inherently wrong in the quality of heartwood obtainable from the *Acacia sundra* trees of *Cuddapah North*.

63. *Cuddapah South.*—The 22 sample plots opened in red sander areas (15 in 1920 and 7 in 1927), with a view to find out the girth increment of red sanders trees were continued to be maintained. Experiments were instituted in some of the red sanders forests, comprised in the *Anantapur*, *Cuddapah North* and *Cuddapah South* divisions, during the year 1927, to investigate the possibility of early-burning, without damage to the seedlings and small saplings of red sanders, wherever it is found impossible to keep out fires permanently. For this purpose, in certain plots—

(*a*) grass was cut away to a radius of 2 to 3 feet about two to four weeks before the ordinary early-burning and thrown in a circle round the seedlings and allowed to dry before the plot was early-burnt;

(*b*) grass was pulled out by the root and otherwise dealt with like (*a*);

(*c*) grass was not cut out or pulled round seedlings, but the plot was early-burnt, and

(*d*) same as (*c*) but seedlings cut back after the early-burning.

Measurements of the seedlings are being recorded twice each year, and it is too soon to draw any conclusions.

64. *Kurnool district.*—The 22 experimental and sample plots, referred to in the last year's report were maintained during the year in *Kurnool South* and *West* and the observations recorded in the plot files concerned. Most of these experiments are for determining the best method of regenerating the timber forests of the Nallamalais, and the conclusions drawn were that clear-felling and rab-sowings are the best method for regenerating the chief timber species in the locality, and weeding and climber cutting are essential during the first two or three years. Stump planting of teak one to two years old to fill up blanks in rab-sown areas gives better results than any other method, and the plants resulting from such planting do not develop any root rot.

It has been decided after the close of the year to maintain hereafter only the rab-sown plots under rigid fire-protection including

cutting back the saplings that may be damaged by any accidental fire, in addition to recording periodical measurements in all sample plots. All the other experimental plots have been ordered to be abandoned.

CHAPTER VII.—ADMINISTRATION.

65. M.R.Ry. Rao Sahib K. R. Venkataramana Ayyar Avargal was in charge of the Circle throughout the year.

66. *Changes in territorial jurisdiction*.—There was no change worth mentioning. A small area of nearly two square miles forming part of the Kothur reserve of the *North Cuddapah* division was added on to the Nellore division for administrative convenience.

67. *Tours*.—The Conservator of Forests toured in all the divisions in the Circle and spent 186 days in camp. All the District Forest offices were inspected.

The touring of all District Forest Officers except of *Anantapur* and *South Kurnool* was inadequate and this was due to changes in the personnel of the officers.

68. *Range office inspections*.—All Range offices were inspected during the year by District Forest Officers.

69. *Audits*.—All the District Forest Offices were inspected by Audit officers and the results were generally satisfactory.

70. *Recruitment to the Madras Forest College*.—None was deputed during the year. One candidate deputed to the College for the 1927-29 course has since completed his training and returned with a Higher Standard Certificate.

71. *The Vernacular Training School*.—The 1928 session of the school was as usual held in the *North Cuddapah* division from 16th January 1928 to 15th July 1928 and the usual report was submitted to the Chief Conservator after the close of the year 1927-28.

The 1929 session which opened on 16th January 1929, was also held in the same division, with Mr. S. Ramachandra Ayyar as the Senior Instructor and V. N. Parthasarathy Nayudu, Forester trained at the Madras Forest College, as the Junior Instructor. It started with 27 students but one student died in the hospital as a result of a fire accident in camp. As there are no more forest guards in this circle who are qualified for training, it has had to be decided that no school should be opened in 1930.

72. *Health of the establishment including an account of measures of sanitation and casualties*.—The health of the staff was generally satisfactory in *Anantapur*, *South Cuddapah* and *North Cuddapah*

(with the exception of the Badvel Range). The staff in the Nallamalais of the *three Kurnool* divisions and in the Badvel range of *North Cuddapah* continued to be bad and many were on leave on medical certificate. Two foresters and two guards in *Anantapur*, three guards and one range clerk in *South Kurnool* and two guards in *Kurnool West* died of malaria. No special measures of sanitation were undertaken but attention is being paid to provide a good drinking water-supply to the staff in remote localities where such supply is not available, and a beginning was made during the year of installing a tube well at Chinnalettipattibhavi in *North Cuddapah.*

CHAPTER VIII—GENERAL.

1. Formation and Management of Panchayats.

73. All class III reserves which, till the close of the previous year, remained under departmental control, in the *Kurnool East* and *Cuddapah North* divisions, were handed over to panchayats during the year, except the Chennupalli reserve in the latter division which is the only reserve, in the whole circle, for which panchayats could not be formed.

On the other hand, the Adoni East and West reserves (class III) in the *Anantapur* division managed till 1927–28 by the Adoni Municipality, under the supervision and control of the Land Revenue Department, reverted to the Forest department, and so was the Tunukonda reserved forest in the Cuddapah South division. The first named reserves continued, however, to be managed by the Adoni Municipality, during the year, subject to the supervision and control of the Forest department. The Tunukonda reserve was taken over by the Forest department after the close of the year, as the panchayatdars refused to continue its management.

2. Measures for improving Local Supplies and Facilities.

74. The existing organization for the supply of the domestic and agricultural requirements of the ryots in the matter of timber, fuel, fodder grass, manure leaves and thorns continued to work satisfactorily on the whole, though a large number of coupes for fuel and small timber could not be sold in the Sirvel and Cumbum taluks (*Kurnool South* division) in particular for want of demand. On the other hand, a number of additional felling series, for fuel and small timber, were opened, towards the close of the year under report, in the *Cuddapah South* and *Kurnool West* divisions with very satisfactory results. The ryots were, as usual, kept informed by notification in the Forest Sheets of the District Gazettes of the different descriptions of forest produce available for sale and the rates at

which they would be sold at edge of coupes. Of the sale depots referred to in the previous year's report, the one at Diguvametta alone continued to function, as the others were closed as a result of the replacement of departmental fellings by contractors.

One other special feature of the year was the regular monthly sales of softwood of *Givotia rottleriformis* from the Chelma forest depot (*Kurnool South*) for the slate industry at Markapur.

Palmyra trees were continued to be sold, as usual, in the *Kurnool West* and *Anantapur* divisions on the basis of the current felling schemes. Permits for green manure leaves were as usual issued in all the divisions, but there was not much demand. The 'Yepi' fibre extraction in four coupes in the Yerramalais (*Kurnool West*) was continued, to provide occupation to the 'Boyas'.

The supply of fuel to the Kurnool and Nandyal towns presented some difficulty towards the close of the year, owing to the impossibility of obtaining cheap transport for the large quantities of fuel lying unremoved in the Nallamalai coupes. But the situation was tided over by promptly despatching fuel by rail from the *Kurnool South* forests and by procuring carts for contractors for the transport of their fuel by road with the help of the Collector.

With the reduction in railway freight, slight as it may be, for the transport of fuel from Gazulapalli and Chelama to Kurnool, the strengthening now being made of the bridge across the Kurnool-Cuddapah canal at Jupad, and the large number of fuel felling series opened towards the close of the year in the *Kurnool West* division, it is hoped that Kurnool town will soon be able to get an adequate and cheap supply of fuel hereafter.

Water-supply.

75. Improvements to wells and 'kuntas' with a view to improve water-supply in grazing grounds continued to receive attention. The following shows the expenditure incurred on these works in the several divisions:—

	Rs.
Anantapur	190
Kurnool East	491
Cuddapah North	257
Cuddapah South	88

3. Timber Transit Rules.

76. The rules have, on the whole, worked satisfactorily; but the elasticity of the direction contained in rule 7 of the rules in regard to the registration of property marks, makes it impossible to prevent smuggling of timber, especially in the *Kurnool West* division. As

the rule now stands, the registration of property mark is not obligatory. Any private timber moved within the protected area is required to be covered only by a permit in Form II to be issued by the owner thereof, which may be printed or in manuscript, and the timber need have no property mark on it. Large volumes of timber, for trade purposes, are annually moved through protected areas to be sold at fairs and festivals, and the department is powerless to prevent smuggling. Steps are being taken to make registration of property mark obligatory.

4. Jungle Tribes.

77. *Cuddapah.*—The Yanadis, of whom there are very few in the two Cuddapahs, continued to be employed, as usual, on forest works, and as forest guards and watchers. Their work and conduct have been satisfactory.

Chenchus.

78. *Kurnool.*—(i) The existing organization, for the amelioration of the Chenchus and for providing works congenial to them on which they could make an honest living, continued to work during the year, under the control of the Special Chenchu Officer (Collector), the total expenditure (net) incurred against the forest revenues of the three Kurnools being Rs. 26,832 as against Rs. 27,849 in 1927-28.

The different sources of income on which the Chenchus subsist, and the details of annual establishment employed in connexion with the amelioration work for the uplift of the Chenchus, have been recorded in the annual report for 1927-28 and they need not be repeated here. Also, as the question of the continuance or otherwise of the existing organization for the management and control of the Chenchus has come under separate consideration after the close of the year, it is unnecessary to discuss here the extent to which it has fulfilled its purpose, what its defects are and how these latter might be remedied. It may, however, be stated that there is considerable difference of opinion between the Forest Officers on the one hand, and the Special Chenchu Officer on the other, as regards the merits claimed for the present organization, and the Chief Conservator has proposed, after the close of the year, that he should discuss the matter with the Conservator, Collector and the local District Forest Officers before any decision can be reached.

(ii) *Chenchu population.*—The Chenchu population as recorded in Mr. Saunder's report (Chief Conservator of Forests' letter No. 5, dated 26th January 1920), and that as ascertained after the close

of the year, by Mr. A. V. Sundaram, Extra Assistant Conservator, on special duty, are compared below :—

	Adult males.			Women and children.			Total.		
	Kurnool.			Kurnool.			Kurnool.		
	West.	South.	East.	West.	South.	East.	West.	South.	East.
Mr. Saunders' report (1919) ..	512	60	644	1,363	141	1,595	1,875	201	2,239
Mr. A. V. Sundaram's report (1929)	534	61	588	753	123	1,576	2,001	184	2,164

In the ten years during which the present organization has been in force, there has been an increase of 34 in the total population of Chenchus in all the divisions, made up of an increase of 67 under females and children, and of a decrease of 33 in the adult males. The decrease under all heads was in *Kurnool East* which coincides with the comparatively low wages earned by the Chenchus as will be shown later, in spite of the areas under cultivation in this division being much larger than elsewhere.

(iii) *Monthly earning of the Chenchus on works directly connected with forests.*—In his report of 1919, Mr. Saunders worked out, on the basis of 305 working Chenchus, out of a total of 512 adult males then, that the average monthly earning of a working Chenchu was Rs. 4–7–0. This increased to Rs. 15 per month per working Chenchu in the same division in 1927–28, as recorded in that year's report. The corresponding monthly earnings, worked out for the same 305 working Chenchus for the year under report, have been Rs. 15–3–0. In *Kurnool East*, the average earnings of a Chenchu, on the basis of about 400 working Chenchus out of a total adult male population of 588, have been Rs. 6–8–0 during the year under report, as against Rs. 4–8–0 in 1927–28. In *Kurnool South*, the average monthly earnings during the year 1928–29 of a Chenchu, based on the entire adult male population of 61, were Rs. 41–5–0. These figures conclusively show that, so far as the acitivities of the Forest Department are concerned in the matter of providing adequate works for the Chenchus, there has been a steady annual increase in the facilities afforded to them of securing an honest means of living, though the educational works, which are not under the control of the Forest Department have not succeeded even to the slightest extent in keeping the Chenchus from setting fire to the forest, for his game, and for the collection of minor forest produce.

Chenchu Crime.

The Assistant Chenchu officer (an Officer of the Ranger class) continued to dispose of all offences against the Chenchus in his capacity as-a Special Magistrate. The number of cases filed in his court during the year was 12, in which 13 persons were concerned against 26 cases involving 69 persons during 1927–28. The decrease is attributed by this officer to the 'lessening of criminal tendencies among Chenchus,' which is strongly questioned by the District Forest Officers who protest that the Chenchus have shown no tendency whatever to desist from setting fire to the forests, that there has been absolutely no propaganda work by the Assistant Chenchu Officer among the Chenchus; and that the Assistant Chenchu Officer's influence over the Chenchus for keeping them from mischief has been practically nil. The 12 offences committed during the year are reported by the Assistant Chenchu Officer to relate partly to offences under the Forest Act and partly to offences under section 324 of Indian Penal Code.

The average number of visits paid by the Assistant Chenchu Officer during the whole year to all the Chenchu gudems in his charge was only two, while there are seven gudems not visited by him for over one year, and two gudems not inspected by him for over two years. His inspections have been far too frequent only in respect of roadside gudems.

Works controlled by the Special Chenchu Officer.

(i) *General control.*—The total expenditure during the year on Chenchu establishment and works (agricultural, educational and industrial works, including medical relief) controlled by the Special Chenchu Officer was Rs. 26,832, of which Rs. 19,098 represented the pay and allowance (travelling allowance, including fixed and compensatory and contingencies) and the rest on educational and other matters, including midday meal for Chenchu school boys, purchase of books, supply of clothing, furniture, etc. The budget, as usual, was prepared by one of the District Forest Officers for the Special Chenchu Officer, but the latter continued to control all the expenditure. One of the three District Forest Officers, however, was authorized by the Special Chenchu Officer to pass the salary bills of the establishment (Rs. 15,731) scattered in the three forest divisions; 'pass' the expenditure, on submission of bills by the Assistant Chenchu Officer, on account of the purchase of books (Rs. 82); 'make payments' on requisition from the Assistant Chenchu Officer on account of scholarships (Rs 765) and on presentation of bills by him for cleaning charges (Rs. 239), and feeding charges (Rs. 3,539); to 'execute petty works' (Rs. 295) sanctioned by the Special Chenchu Officer, and to 'supervise'

expenditure on contingencies under 'Medical' (Rs. 500) and on industries (Rs. 1,767); the only bills that were countersigned and passed by the Special Chenchu Officer being the travelling allowance and contingent bills of the Assistant Chenchu Officer and of his office and cost of clothing and equipment of Chenchu boys aggregating about Rs. 3,554. Having regard to the fact that none of the Chenchu establishment is under the supervision and control of the District Forest Officer, it looks as if the control exercised by the District Forest Officer over the bills presented to him by the Assistant Chenchu Officer for payment of an aggregate sum of Rs. 23,278 (Rs. 26,832 — 3,554) could have been anything but nominal.

(ii) *Agriculture.*—Neither the reports of the District Forest Officers, nor that of the Assistant Chenchu Officer contain any statement of the area brought under cultivation as a result of the continuance of the policy of the grant of loans to Chenchus for purchase of bulls for ploughing. It is gathered from the District Forest Officers' reports that there was an outstanding loan of Rs. 2,783-13-0 at the close of last year to which was added, during the year, a further loan of Rs. 360 on the recommendation of the Assistant Chenchu Officer. The cash recovery of outstandings effected through the exertions of the forest staff amounted during the year to only Rs. 951-8-0, leaving an unadjusted balance of Rs. 2,192-5-0 at the close of the year under report. That no progress was made on settling down the Chenchus to cultivation is borne out by the fact that in spite of about 338 acres of lands in the reserves of *Kurnool East* having been leased out to the Chenchus free of assessment several years ago, as much as 260 acres remained untouched at the close of the year. In this connexion the following extract from the remarks of the Special Chenchu Officer, dated 23rd July 1929, may be of special interest :—

"The statistics of Chenchu cultivation during the five years ending 1928-29 give the impression, as his diaries did till recently, that the Assistant Chenchu Officer in the course of his tours does little or no propaganda and has not achieved any substantial results, after making all due allowance for the difficulties to be overcome. The Assistant Chenchu Officer must justify his existence by more tangible results and he must establish some real influence over the Chenchus to make them do what he is supposed to make them do.

"In addition to substantial missionary work in the cause of agriculture, he must do his utmost to get colonies to settle at Gundlabrahmeswaram and Isukagundam.

* * * *

"A steady measure of cultivation should be expected if the Assistant Chenchu Officer does his work properly."

(iii) *Industries.*—An amount of Rs. 1,767 was sanctioned during the year by the Collector for promoting industries in the same centres as noted in the previous year's report, viz., Pecheruvu, Indreswaram and Bairluty in the *West Dvision* and Chilakacherla in the *East Division* on an average of about Rs. 440 per centre. Carpentry, tape-weaving and basket making were taught in all the four schools. The Assistant Chenchu Officer commends the work of all the instructors, while the District Forest Officer, *Kurnool West*. reports that the carpenter at Bairluty is not suited to his job and the tape-weaving industry at Indreswaram had to be suspended for over three months for want of a suitable instructor who could turn out a minimum amount of work.

The Chenchus do not seem, on the whole, to have been benefited by the sort of industrial training they have so far received at the schools and none has so far practised the profession, if he has learnt it at all. This aspect of the matter will doubtless be considered when the whole question of Chenchu organization comes under review. It is, however, permissible to note below an extract from the remarks, dated 9th August 1929, of the Chief Conservator on the annual report of the Deputy Inspector of Schools on the Bairluty Chenchu school.

"The vocational training given in this school (the Chief Conservator saw it in July) is not appropriate. Before the pupils are taught to make bad chair legs, they should be in respect for, and the growing of, trees. They live in the forest and always will—hitherto they have been a menace to the forest—and they must be taught from infancy that their interests are bound up with the forest (which, by the way, pays for these attempts at Education). It would not be a difficult matter to arrange for planting and tending work to be undertaken by the children, who, it might be hoped, would thus be taught to respect trees and to protect what they have themselves created—work of this nature could easily be arranged for through the Assistant Chenchu Officer, who does not appear to be pulling his weight. If the report is read correctly he had not visited this school, of which he is Manager for nine months.

"A start may be said to have been made, but it is not on correct lines and it will perhaps be possible, in connexion with the conversation which it is hoped will take place on the subject of the continuance of the Assistant Chenchu Officer, to lay down the broad lines which should be followed in this important matter of education."

(iv) *Education.*—The nineteen schools that were in existence at the close of last year continued during the year under report. The schools are under the control of the Special Chenchu Officer (Collector of Kurnool). The Assistant Chenchu Officer and the

Chenchu Supervisor of Schools supervised the work of the schools. The Supervisor is said to have inspected each school once a quarter and toured, on an average, twenty days in a month. The Assistant Chenchu Officer reports to have visited the nineteen schools on fifty-three occasions in the calendar year 1928, out of which fourteen visits were paid to the school at Bairluty which is on a road-side; the other schools were thus visited twice during the year on an average. The schools at Garnapenta and Nagaluty were, however, not visited at all during the year.

There is a teacher for each school, and out of 19 teachers, 15 are trained and the rest untrained; two Chenchus and one Muhammadan continue to receive their teacher's training in the Government Training Schools at Kurnool. Out of the 19 teachers in service, 4 are Muhammadans, 8 Hindus, 5 Christians, 1 Sugali and 1 Christian mistress. The number of pupils on the rolls on 31st March 1928 was 282 boys and 156 girls, while the number on rolls at the close of the year was 270 boys and 167 girls. The average number on the rolls in each school during the year was 14 boys and 9 girls and the average attendance of each school was 11 boys and 7 girls.

The pupils are being taught up to IV standard. There are 5 boys studying in the Board High School with the aid of Government scholarship of the value of Rs. 175 per pupil per annum, and 2 boys of Nagaluty Gudem were admitted during the year into the same high school.

Midday meal to the Chenchu pupils in all schools was continued to be given. The expenditure on this account during the year is Rs. 3,539. It was introduced in order to stimulate better attendance of pupils at the schools but there has been no improvement in this direction so far, as will be seen from the following figures:—

	Average daily attendance.
1926–27 (*Before* the introduction of midday meal) ...	20
1927–28 (*After* the introduction of midday meal) ...	17
1928–29 (Do.) ...	18

On the other hand, the District Forest Officer, *Kurnool West*, is of the view that as soon as the midday meal is over the pupils lose all interest in their studies, and the Special Chenchu Officer (Collector) shares the same view. The Chief Conservator has remarked after visiting the school at Bairluty on 14th July 1929 as below:—

"The average attendance is stated to be 24 pupils. When the Chief Conservator saw the school, not more than a dozen or so were present and considerable number of other children of school-going age were seen (in the Gudem)."

The Assistant Chenchu Officer reports that the work and conduct of the supervisor and teachers were quite satisfactory but the District Forest Officer, *Kurnool West*, holds quite a different view, and the Collector promises to go into the question of altering the curricula and getting better work turned out by the Supervisor of Schools. In this connexion the following extract from the remarks, dated 9th August 1929, of the Chief Conservator on the annual inspection report of the Deputy Inspector of Schools on one of the Chenchu schools in the *Kurnool West* Division, may here be recorded :—

"There appears to be some reason to suppose that these schools are run on entirely wrong lines. Their theoretical object is admissible—it is a first step in reclaiming a tribe of criminal tendencies and making its members useful members of society and less of a menace to the public welfare. Insistence upon drawing, civics, mental arithmetic and some other subjects which appear to be included in the curricula seems to be unnecessary, for it should suffice if the syllabus is confined to reading, writing and very simple arithmetic. The practice in respect of the ordinary schools should not be held to apply."

Expenditure on the following items of works was incurred in connexion with the maintenance of the schools during the year :—

	Rs.	A.	P.
Feeding, cleaning charges and industries.	5,544	9	0
Purchase of books	82	3	0
Purchase of furniture	...		
Construction and repairs to sheds ...	337	10	9
Cost of clothings	188	6	6
Teachers' salaries	6,552	9	0
Supervisor's salary	777	8	0
Pay of supervisor's peon	168	0	0
Total ...	13,650	14	3

The expenditure during 1927–28 was Rs. 16,448–2–11 and the decrease during the year is mainly due to the fact that fresh sets of clothing have not been supplied during the year as they were not ready.

The health of the pupils and teachers suffered now and then from malarial fever as usual and this caused dislocation of work.

MINING AND QUARRYING.

79. *Anantapur.*—There were no new leases and no removal of manganese ore during the year. Rupees 203 were collected towards the value of tree growth and Rs. 1,503 towards dead rent.

Kurnool West.—The five-year leases for quarrying slabs and stones continued to be in force.

Cuddapah South.—As in the previous year, the holder of the licence for manganese ore did not work during the year.

LIVESTOCK.

80. (*a*) *Elephants.*—The two elephants referred to in the last year's report continued to be attached to the *Kurnool West* division. Both of them were in indifferent health during the year. Arrangements have been made since for their inspection and treatment by the Inspector of Livestock.

(*b*) *Buffaloes.*—The two buffaloes in the *Kurnool South* division were sold, and the two in the *Anantapur* division remained attached as heretofore to the Horsleykonda bungalow for carrying water to the garden in the bungalow compound.

VETERINARY ESTABLISHMENT.

81.—*Nil.*

SUITS.

82.—*Nil.*

CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.

83. In the *Anantapur* division, 346 acres of assessed wastes adjoining the Bandri reserve in Hospet Range were transferred to the charge of the Forest Department for the protection and treatment of the sandalwood trees in them.

ENCLOSURE.

A BRIEF ACCOUNT OF FOREST OPERATIONS AND THEIR RESULTS IN THE SEVERAL DIVISIONS OF THE SECOND CIRCLE, BELLARY, DURING 1928-29.

ANANTAPUR.

Description and area.—The aggregate extent of reserved forests in the division in charge of the department is 575 square miles which are scattered in the four civil districts of Chittoor, Cuddapah, Anantapur and Bellary.

The increase of 8 square miles as compared with the last report is due to the transfer of Adoni East and West reserves managed by the Adoni Municipality to the control of this department. The forests are confined to isolated hills with small extensions into the plains and they consist, for the most part, of an inferior type of scrub jungle over-grazed and much hacked in the past. The only areas which support an indifferent type of timber crop-mostly poles, are those situated in the Vempalli and Ganganapalli ranges forming part of the civil district of Cuddapah. Some excellent patches of sandalwood are found in Horsleykonda and some scattered growth of the same is also to be found in a few other reserves in the division. Either for timber or for fuel this division is not important, the bulk of its revenue being from its minor forest produce (chiefly Tangedu bark). The palmyra plantation at Idupulapaya is another source of timber.

2. *Subordinate executive and protective charges.*—The division consists of five range charges and 57 beats, each of the former being in charge of a ranger and each of the latter in charge of one forest guard and one watcher. The names of ranges and number of beats in each are as below :—

Name of range.	Number of beats in the range.
Bukkapatnam	12
Hospet	9
Ganganapalle	8
Vempalli	11
Madanapalle	17
Total ...	57

3. *Cost of administration.*—The cost of administration (pay, travelling allowance and contingencies) was Rs. 56,612. Establishment alone has cost)—

	RS.
(*a*) District Forest Officer	7,200
(*b*) Rangers	7,957
(*c*) Subordinate staff	19,006
(*d*) Clerical staff	8,590
Total ...	42,753

4. *Cost under other important heads.*—There are no works of any outstanding importance in the division except the special tending of young sandalwood and eradication of lantana over a fairly large area at a cost of Rs. 352-10-0.

Dibbling of sandal in 53 acres in all, in suitable localities, with a view to establish centres of propagation for the natural spread of the species into adjoining areas of reserves was also another work of importance on which a small amount of Rs. 28-10-0 was spent, most of the work having been carried out free of cost by beat subordinates. In 10 acres the operation was a failure. The other works carried out during the year were of a recurring nature such as demarcation of annual fuel and timber coupes, maintenance of existing roads and buildings, early-burning and repairs to tanks and wells in grazing grounds for affording water facilities to grazing animals.

5. *Income from main sources.*—The bulk of the gross revenue (69·70 per cent) is from Tangedu bark of which a very large portion is rightly creditable to unreserves and even grazing only forms 8·77 per cent of the gross revenue. There seems to be hardly any scope for development of revenue from timber but in the matter of fuel including small timber, such as hutting materials, there appear to be some possibilities which are being tried, by opening additional coupes.

The introduction of sandal in suitable localities is likely, ultimately, to increase enormously the value of some of the reserves in the division.

Details of revenue under various items are given below :—

	Rs.
(*a*) Sandalwood	122.
(*b*) Timber	4,223 from reserves. 30,872 from unreserves.
(*c*) Fuel	3,563 from reserves. 7,798 from unreserves.
(*d*) Bamboos	170.
(*e*) Grazing	32,834.
(*f*) Minor produce	7,977 from reserves. 2,63,718 from unreserves.
(*g*) Miscellaneous	About 5,000 from reserves. 16,945 from unreserves.
Total ...	3,73,222

6. *Chief works done in the division.*—Except the tending of sandalwood and eradication of lantana in Horsleykonda and the dibbling of sandalwood to establish propagation centres in all reserves, no other work of importance was carried out during the year. In the matter of supply of small timber including palmyra trees an aggregate extent of 1,027 acres was gone over for the extraction through lessees of a quantity of 14,000 cubic feet of timber. As regards fuel, a quantity of 668 tons of it from an area of 756 acres was placed on the market during the year.

Kurnool East.

Description and area.—The total area of reserves in the division is 886 square miles and it forms the easternmost, and outlaying portions of the Nallamalais hills which have been recklessly cut over in the past. All

the outer slopes are practically devoid of any tree growth worth mentioning in them, except for some stunted and gnarled growth of *Yepi*, few and far between. A large part of the interior of the hills which support an irregular, mixed, open deciduous forests of varying density, is economically unworkable except for minor forest produce and bamboos. The most important species composing the crop in the workable portions are *Terminalia tomentosa*, *Pterocarpus Marsupium* and an occasional teak and rosewood. This type of forest is confined to localities with an average annual rainfall of about 40 inches, the rainfall elsewhere in the less well-wooded portions being only about 20 inches. Bamboos occur throughout the area of 40-inch rainfall.

2. *Subordinate executive and protective charges.*—The division is divided into five ranges, each in charge of a ranger with a total number of 37 protective beats looked after by 37 guards and 37 watchers. For the execution of works and for charges of certain sections, there is a staff of sixteen foresters. The names of ranges and number of beats in each are shown below :—

Name of range.	Number of beats.
Turimella	10
Markapur	7
Yerrakondapalem	6
Ganjivaripalli	5
Dornal	9
Total ...	37

3. *Cost of administration.*—The total expenditure for the division under ' B. Conservancy and works ' and ' C. Establishment ' during 1928–29 was Rs. 70,316, of which Rs. 54,967 was on establishment which is 78 per cent of the total expenditure.

4. *Cost under other important heads.*—The important works of the division on which expenditure was incurred consisted of the departmental felling of timber, under Timber-improvement-*cum*-clear-felling system, and selection system, and collection of dead wood. The collection of minor forest produce and extraction of bamboos were undertaken departmentally till the lessees were put in possession of the leased areas. Most of this work was for providing labour for Chenchus. The amount spent on the above operations carried out through departmental agency was Rs. 2,888.

The Chenchu Industrial School at Chilakacherla in this division was run at a cost of Rs. 610 and it was also an item of work on which a large amount of money was spent during the year for which accounts are maintained by the Special Chenchu Officer.

The maintenance of roads and buildings and fire protection operations and miscellaneous other works and petty items of expenditure have cost Rs. 6,754. On the construction of new roads, buildings and wells a total amount of Rs. 767 was spent during the year.

5. *Income from main sources.*—The main sources of revenue and the percentage they form of the gross revenue of 1928-29 are noted below:—

	Rs.		
Timber	9,157	(Rs. 553 from unreserves),	14 per cent.
Firewood and charcoal	1,162	(Rs. 344-from unreserves),	.2 per cent.
Bamboo	4,034	6 per cent.	
Grazing	29,238	47 per cent.	
Minor forest produce.	11,116	(Rs. 5,895 from unreserves)	18 per cent.
Miscellaneous ...	8,000		13 per cent.
Total ...	62,707		

6. *The chief work done in the division* was to provide Chenchus, who are scattered all over the division in 23 Chenchu Gudems, with an aggregate population of 1,762 Chenchus—consisting of 489 men, 459 women and 814 children, with a congenial occupation by extracting timber, bamboos and other minor forest produce. The agency of exploitation is being gradually changed, from departmental into a system of leases to contractors. Seventeen thousand cubic feet of small timber and 825 tons of fuel were extracted for the market. The works provided for were in places where the demand justified them under the prescriptions of the working plan sanctioned during the year.

The ten Chenchu schools continued to work during the year 1928-29 and the amount spent on them on account of pay of schoolmasters, and of midday meal to the pupils was Rs. 5,212.

The pupils were taught carpentry and basket work in the school at Chilakacherla as usual.

The cultivation by the Chenchus of lands leased out to them in the reserves, free of assessment, has made no progress in spite of advances being made for the purchase of plough-cattle.

Kurnool South.

Description and area.—The area of reserves under departmental control in the division is 634 square miles, of which the Nallamalais and its foothills cover about 532 square miles and the Velligondas, 102 square miles.

The forest consists of a deciduous irregular mixed type, the principal species composing the crop being Teak, *Terminalia tomentosa*, *Pterocarpus Marsupium*, *Dalbergia latifolia*, *Anogeissus latifolia and Hardwickia binata.*

Most of the accessible portions have been heavily cut over in the past, and the foot-hills for the most part consist at present of only trees fit for fuel for which they are being worked.

There are some portions of the plateaus and inner valleys which contain a better type of forest where timber trees of comparatively large dimensions are found, while elsewhere, on the outer slopes, the pole forests lend themselves to remunerative working.

Bamboos are found almost throughout the forest and they constitute one of the chief sources of revenue.

The division as a whole is well served by roads and railway.

2. *Subordinate executive and protective staff.*—The division consists of four ranges each in charge of rangers, and 37 beats (protective units) each in charge of a forest guard and a watcher. For assisting in the protection of reserves and in the supervision and execution of works in them, there are seventeen foresters, some of whom are in charge of important sections (group of beats), and others in charge of special forest works.

The names of ranges and the number of beats in each are given below :—

Name of range.	Number of beats.
Chelama	9
Gundlakamma	6
Giddalore	12
Sirvel	10
Total ...	37

3. *Cost of administration.*—The cost of administration (establishment charges including contingencies) has been Rs. 65,090 and it forms 82 per cent of the total expenditure (Rs. 79,234) in the division during the year.

4. *Cost under other important heads.*—The total expenditure incurred during the year under 'B. Conservancy and works' including '52-A. Capital' has been Rs. 14,238, of which Rs. 1,502 was spent on the construction of new roads, buildings and wells. Of the remaining expenditure, Rs. 2,093 represented cost of departmental timber operations which constitute the most important work of the division. The annual maintenance of roads, buildings, and wells involved an aggregate expenditure of Rs. 3,649 while fire protection operations have claimed Rs. 457.

The silvicultural experiments connected with finding out the best way of regenerating the hill forests of the Nallamalais, etc., have cost during the year, Rs. 521.

5. *Income from main sources.*—The chief item of revenue was from timber and fuel which together have contributed 45 per cent of the gross receipts of the year. Bamboos coming next have given 23 per cent of the gross revenue, while grazing was responsible for 14 per cent; minor forest produce is practically a negligible source of revenue.

	Rs.	
Timber	47,620	(Rs. 1,627 relates to unreserves.)
Fuel	10,961	(Rs. 1,404 do.)
Bamboo	29,466	
Grazing	18,732	
Minor produce ...	8,119	(Rs. 3,629 relates to unreserves.)
Miscellaneous	13,633	
Total ...	1,28,531	

6. *Chief works done in the division.*—By far the most important works in the division relate to the departmental extraction of big timber and to the leasing of the timber-*cum*-fuel, fuel and bamboo coupes of the year.

During the year a quantity of 25,000 cubic feet of comparatively big timber was extracted departmentally for sale, while a quantity of 123,000 cubic feet of small timber was extracted through forest lessees. As regards fuel, all fellings were mostly through lessees and an aggregate quantity of about 2,475 tons of fuel was placed on the market.

KURNOOL WEST.

Description and area.—The area of reserves under departmental control in the division is 856 square miles of which the Yerramalais form 300 square miles and the rest of the area is included in the western portions of the Nallamalais including their foot-hills.

The Yerramalais support a comparatively inferior type of a very much open deciduous mixed forest in which Yepi (*Hardwickia binata*) predominates in most parts, sometimes occupying pure patches—while teak, *Anogeissus, and Terminalia tomentosa* affect special localities. But, in nearly every case, the trees are stunted and malformed and nowhere are they fit for any timber, as even *Yepi* is only fit for fuel at present. The rainfall in this region is scanty and the soil generally of little depth.

The Nallamalai portion of the division, on the other hand, though also of a deciduous irregular mixed type of forest, has better soil and greater rainfall and the composition and condition of the forest are therefore better than those of the Yerramalais. But even here, areas fit for growing big timber are confined to special localities such as those in some of the inner valleys and plateaus where remunerative timber felling is unfortunately not yet possible. The 'Terai' portions, however, contain areas where economic working of small timber and fuel is possible and it is here that the bulk of the Chenchus are established through whose agency the departmental works are being carried out.

Bamboos are abundant generally throughout the Nallamalais and they offer a steady source of revenue.

2. *Subordinate executive and protective charges.*—The division consists of seven ranges, two in the Yerramalais, and five in the Nallamalais, with 38 protective units (beats) on the whole. The names of ranges and the number of beats in each are as below :—

Name of range.	Number of beats.
Kurnool	9
Dhone	7
Nandyal	4
Gundlabrahmeswaram	5
Bairluty	5
Sivapuram	6
Pecheruvu	2
Total ...	38

3. *Cost of administration.*—The cost of administration during the year (Establishment including contingencies) has been Rs. 69,592. This come to 75 per cent of the total expenditure (Rs. 87,932) of the division.

4. *Cost under other important heads.*—Hitherto the most important works in the division related to the departmental timber and fuel fellings in the terai portions and the Gundlabrahmeswaram plateau of the Nallamalais, both for the purpose of economic working of the forests and also for affording a steady source of employment to the chenchus of whom there is a large number depending on the forest department for help, but in the year 1927-28, departmental fellings were mostly given up in favour of felling by contractors through the agency of Chenchus. This resulted in a large saving of expenditure under timber and fuel operations. The maintenance of the Chenchu industrial schools has, however, been continued.

On the annual maintenance of roads, buildings and other works, an aggregate expenditure of Rs. 2,635 was incurred, while sowing and planting and maintenance of boundaries cost Rs. 576. The maintenance of two elephants for baggage purposes has cost Rs. 1,616 to the department. Fire protection involved an expenditure of Rs. 948, while the construction of new roads, building wells and improvement of water sources has resulted in an expenditure of Rs. 1,323.

5. *Income from main sources.*—The chief item of revenue was from small timber and fuel to an extent of 25 per cent of the gross revenue; minor produce has given 19 per cent while grazing gave 26 per cent. Bamboos are responsible only for 13 per cent of the gross revenue.

Details of revenue under each head are as below :—

	Rs.	
Timber	30,034	(Rs. 5,918 from unreserve).
Fuel	13,723	(Rs. 3,490 from unreserve).
Bamboos	17,236	
Minor forest produce ...	60,610	(Rs. 32,790 from unreserve).
Grazing	36,015	
Miscellaneous	21,670	
Total ...	1,79,288	

6. *Chief works done in the division.*—The chief works of the division consisted during the year of

(i) timber and fuel fellings in the terai portions of the Nallamalais carried out departmentally,

(ii) timber and fuel fellings elsewhere; bamboo fellings and minor forest produce collection throughout the division through the agency of lessees from well-defined extraction units and

(iii) the running of the Chenchu industrial schools.

The quantity of timber extracted during the year was 71,000 cubic feet of which 18,000 cubic feet were extracted through departmental agency. As regards fuel an aggregate quantity of about 6,800 tons was felled of which about 3,000 tons were through departmental agency.

7. *Revision of working plans.*—Mr. H. E. Brown joined the division early in January 1929 as Assistant Working Plan Officer and took up the preparation of the Nallamalais working plan under the orders of the Conservator

Pending the definite constitution of the different felling series for timber and fuel, coupes for 1928–29 were demarcated and sold to the fullest extent possible.

The revision of the Yerramalais working plan was nearing completion at the close of the year.

CUDDAPAH NORTH.

Description and area.—This forest division, which has 790 square miles of reserved forests in it managed by the department, covers the eastern slopes of the extreme south end of the Nallamalais, and also the Lankamalais, the Palakonda and the Veligonda Ranges with their foot-hills. The Veligondas on the east which form an unbroken chain, except where the Penneru river cuts through them, separate this division from Nellore. The forests comprised in these hills are all deciduous, irregular and open, varying considerably in the condition and the density of the growing stock. The foot-hills and outer slopes are fuel forests. The inner slopes and plateaus contain a degraded type of pole forests in which red sanders predominates, mixed with *Pterocarpus Marsupium* and *Anogeissus latifolia*, which are the chief timber species of the district; in parts of the district *Hardwickia binata* occurs, often in pure patches, but it does not grow to any large dimensions.

Of the area shown in the last report, two square miles were transferred to the First Circle for administrative convenience.

2. *Subordinate executive and protective charges.*—The forest division is divided into five ranges each in charge of a forest ranger, and each range is split up into a number of beats, as noted below, each in charge of a forest guard and a watcher:—

Name of range.	Number of beats.
Sidhout ...	6
Badvel ...	8
Porumamilla ...	10
Vonipenta ...	12
Vontimitta ...	10
Total ...	46

3. *Cost of administration.*—In addition to the normal staff of the division, a staff of two instructors was employed for running the annual session of the Vernacular Training School, for forest guards, attached to this division and the cost of all establishment, including contingencies, was Rs. 64,206. Establishment alone has cost—

	Rs.
(*a*) District Forest Officer ...	11,163
(*b*) Rangers ...	10,584
(*c*) Subordinate staff ...	21,526
(*d*) Clerical staff ...	10,369
(*e*) Vernacular Training School ...	7,071
Total ...	60,713

4. *Cost under other important heads.*—The total expenditure incurred during the year on account of all the ordinary and capital works, debitable to "B. Conservancy and works and 52-A. Capital" was Rs. 14,916. In view of the fact that all the annual operations connected with the extraction of timber and other forest produce are carried out through contractors to whom the right to collect and dispose of the annual yield from well-defined areas is leased, no expenditure was incurred on the exploitation of forest produce during the year. The only expenditure on departmental operations was in felling the indicator areas in coupes to be leased out. A sum of Rs. 8 was spent on the experimental manufacture of cutch on a small scale to find out if it would pay to work it on a larger scale.

Among the other works of importance, the following may be mentioned :—

	Rs.
Tiling the rest-house at Kothabhavi	349
Part construction of subordinates' quarters at Balayapalle	350
Part construction of a tube well at Chennelettipatibhavi.	257

All other works carried out in the year were of a recurring nature, such as the maintenance of the existing roads and buildings, cultural operations and fire protection, etc.

As regards the manufacture of cutch, the result so far has not been encouraging. A sample of the local wood has been sent to the District Forest Officer, North Mangalore, for trial there and the result is awaited.

5. *Income from main sources.*—The main source of income was from small timber and fuel which together contributed about 36 per cent of the gross revenue, and from grazing which contributed about 36 per cent during the year. Details of revenue from various items are given below :—

	Rs.	
Timber	17,998	(Rs. 1,439 relates to unreserves).
Fuel	12,030	(Rs. 2,237 relates to unreserves).
Bamboos	5,303	
Minor forest produce ...	8,322	(Rs. 3,700 relates to unreserves).
Grazing	30,499	
Miscellaneous, including confiscations, rent of buildings, etc. ...	10,361	
Total ...	84,513	

The rate of grazing fee was enhanced during the year from three to six annas a cow-unit.

6. *Chief works done in the division.*—During the year, 59,000 cubic feet of small timber and about 6,717 tons of fuel from about 1,810 acres were extracted through the agency of contractors. All bamboo coupes of the year were also similarly leased.

7. A working plan for the whole division was prepared and sanctioned during the year.

CUDDAPAH SOUTH.

Description and area.—The area of reserved forests in the division, in charge of the department, is 689 square miles, made up of the whole of the Seshachellam hills on the west, all the Veligondas South of the Penneru, with their foot-hills on the east, and a portion of the Palakondas in between. The forests throughout are of the dry deciduous, irregular and open type, red sanders being the principal species in all the outer slopes and plateaus up to about 2,000 feet elevation. The foot-hills consist for the most part of fuel forests, while localities above the 2,000 feet level contain varying abundance of a stunted growth of *Shorea Tumbuggaia*, *Shorea Talura* and *Eugenia alternifolia* not fit for timber.

Though this division is the chief home of red sanders, which is a very valuable timber tree, trees of this species above 30 inches girth are few and far between and, even among the smaller trees, sound poles do not generally exist over large areas.

The red sanders plantation at Kodur, however, is the only locality where some big red sanders have been successfully grown by the department.

The other timber species common to the division are :—

(1) *Anogeissus latifolia*,
(2) *Chloroxylon swietenia*,
(3) *Terminalia tomentosa*,
(4) *Hardwickia binata*, and
(5) *Pterocarpus Marsupium*,

but none of these grow to any large size before getting hollow and unsound.

2. *Subordinate executive and protective charges.*—The division consists of the following range-charges, each under a ranger. The number of protective-units (beats) is as below :—

Name of range.	Number of beats.
Cuddapah	7
Rajampet	10
Kodur	8
Balapalle	9
Chitvel	8
Sanipaya	10
Total ...	52

3. *Cost of administration.*—The cost of administration (establishment charges including contingencies) for the year 1928-29 was Rs. 63,391.

4. *Cost under other important heads.*—There were no special works of importance over which large amounts were spent. The following are the few items of works undertaken during the year :—

	Rs.
(1) Completion of the rest house at Ankimadugu with out-houses in Cuddapah range.	344
(2) Sinking of a well in the compound of the proposed range quarters at Rajampet.	219

An amount of Rs. 690 was spent on the acquisition of site for the construction of range quarters at Rajampet.

The rest are all works of a recurring nature such as repairs to buildings and roads, fire protection and other works of minor importance. The aggregate expenditure under 8 (*b*) Conservancy and works and 52-A Capital was Rs. 18,666 as against Rs. 18,456 spent in the previous year.

5. *Income from main sources.*—The main sources of income were leases of timber and fuel coupes under sanctioned working plans, leases of bamboos and minor forest produce, grazing and penning of cattle in the reserves, and compounding fees collected in forest offences.

An amount of Rs. 848 was realized by the sale of sandalwood, extracted from Kôdur red sanders plantation in Palapalle Range, which was sent to Vellore, for sale by the District Forest Officer, Vellore. The total revenue realized from all sources was Rs. 1,18,149 as against Rs. 95,053 in the previous year. Details of revenue under the various heads are given below :—

	Rs.	
(*a*) Sandalwood	848	
(*b*) Timber	36,977	(Rs. 697 relates to unreserves).
(*c*) Fuel	33,298	(Rs. 787 relates to unreserves).
(*d*) Bamboos	7,150	
(*e*) Grazing	18,785	
(*f*) Minor forest produce (Rs. 6,499 relates to unreserves).	12,733	
(*g*) Miscellaneous	8,358	
Total ...	1,18,149	

Timber and fuel formed the chief items of revenue and they contributed 59 per cent.

The striking feature of the year's financial results is that the district which has been working at a very heavy deficit for the past several years, showed a marked profit during 1928-29 giving a surplus revenue of Rs. 36,092 against a deficit of Rs. 13,069 during the five years ending with 1927-28. It is expected that this surplus will be maintained in all future years.

6. *The chief works done in the division.*—The works carried out during the year were of a routine and recurring nature. The extraction of both major and minor produce was carried out, as usual, through the agency of lessees, under departmental supervision. About 81 600 cubic feet of small timber and 25,000 tons of fuel from an area of 4,360 acres were placed on the market during 1928-29, as against 45,000 cubic feet of small timber and 23,500 tons of fuel from an area of 2,875 acres during 1927-28. Grazing and penning were allowed, as usual, on permits issued at fixed rates—the grazing fees for local cattle having been increased from 3 annas per cow-unit to 6 annas per cow-unit during the year, in accordance with Government Order No. 64, Development, dated 17th January 1927.

One important feature in working the forests of the division, was the attempt made in preparing a single working plan for all the reserves in the division, which was nearing completion at the close of the year.

SUMMARY OF PROGRESS DURING THE FIVE YEARS 1924-25 TO 1928-29.

Administration.—The following officers held charge of the Circle during the period under review :—

	From	To
Mr. T. Clear ...	1st April 1924 ...	27th September 1924.
Mr. C. C. Wilson.	28th September 1924.	18th November 1925.
Mr. T. A. Whitehead.	19th November 1925.	31st March 1926.
Mr. F. R. Madan.	1st April 1926 ...	6th January 1928.
M.R.Ry. Rao Sahib K. R. Venkataramana Ayyar.	7th January 1928.	31st March 1929.

2. *Changes in the administrative charges.*—The more intensive forest management that became possible, as a result of the completion of the reclassification of forests and the transfer of all minor (ryots') forests to the control of the Land Revenue Department for management by panchayats, was followed, during the quinquennium by a readjustment, with effect from 1st May 1925, of the territorial charges which were reduced from six to five, with a separate Conservator to be in charge of working plans. As a consequence of this arrangement, the three Cuddapahs and Chittoor divisions were transferred from the III to this (II) Circle. Subsequently, however, the latter division was transferred to the IV Circle except the forests comprised in the Madanapalle taluk. The Guntur division was transferred to the I Circle. The Bellary and the Cuddapah West divisions were abolished, the former being merged in the Anantapur division and the forests of the latter being distributed among the remaining two Cuddapahs and the Anantapur division. The net result of all these changes was that the II Circle had in it four major and two minor divisional charges, and thirty-two forest ranges at the close of the quinquennium.

The forest divisions at the end of the quinquennium were—

Anantapur (minor).	Kurnool West (major).
Kurnool East (minor).	Cuddapah North (major).
Kurnool South (major).	Cuddapah South (major).

3. *Changes in the executive and protective staff.*—The following ranges were abolished :—

Rachakonda range in *Kurnool East*, Gooty, Tadpatri, Madakasira, Kadiri and Bellary ranges in *Anantapur*, and Owk range in *Kurnool South.*

A considerable reduction in the number of foresters and forest guards was also made as a result of the handing over of ryots' forests to panchayats.

4. *Changes in area.*—The area of reserves at the commencement and close of the quinquennium was as below:—

		At commencement of the quinquennium. SQ. MILES.	At the end of the quinquennium. SQ. MILES.
Reserved forests	...	6,477	5,838
Reserved lands	...	3	...
		6,480	5,838

The 5,838 square miles of reserved forests shown above consist of 4,830 square miles under the control of the Forest Department, and the rest (1,458 square miles of ryots' forests) under the Land Revenue Department. The latter include, however, six square miles not yet handed over, as panchayats could not so far be formed for them.

5. *Forest settlement.*—There was no area pending settlement at the end of the quinquennium.

6. *Demarcation.*—The total length of artificially demarcated boundaries at the close of the period was 4,323 miles, against 6,694 miles at the commencement. The decrease was chiefly due to the exclusion of ryots' forests from the departmental return.

Twenty-three miles of new demarcation were done during the period.

7. *Surveys.*—No work was done either by the Survey of India or by the Madras Survey Party.

8. *Working plans.*—The quinquennium under report marks a definite stage in the activities of the department towards the solution of some of the sylvicultural problems connected with the regeneration of a few of the more important timber species in the Nallamalais of the Kurnool district. An officer was placed on research work in the Kurnool district and as a result of the experiments carried out by him, the preparation of a working plan for the Nallamalais of the *Kurnool West* division was taken in hand after the close of the quinquennium. Several other working plans and schemes were also prepared and sanctioned during this period, the chief of which being those for the forests comprised in the *Cuddapah North, Kurnool East* and the major part of *Kurnool South* divisions. Similar working plans were nearing completion at the close of the period in the *Anantapur* and *Cuddapah South* divisions, the plans in all these cases being prepared by the District Forest Officers themselves in addition to their duties.

The aggregate area under working plans and schemes at the commencement of the quinquennium, in respect only of reserves now comprised in the Circle, was 496 square miles and the corresponding area at the close of the quinquennium was 2,430 square miles.

The introduction of the method of concentrated regeneration of sandal-wood in suitable localities in all the divisions was also an additional feature during the period under review.

9. *Communications and buildings.*—The average annual expenditure on communications, buildings and other works amounted to nearly Rs. 41,000, which is slightly in excess of the average of the previous quinquennium. Forty-four miles of new roads and paths were constructed at a cost of Rs. 14,555; Rs. 32,674 were spent on new buildings and Rs. 8,281 on wells, etc.

10. *Forest offences.*—No comparison is possible in view of the administrative changes and the exclusion of figures relating to forest offences in 'panchayat' reserves from the annual returns. The average number of forest offences during the past two years, however, was 4,000 per annum and it may be said that offences have not been on the increase.

11. *Fire protection.*—The system of early-burning referred to in the last quinquennium was continued during the period under report with, more or less, satisfactory results, the operation being confined strictly to real danger zones and to the comparatively more valuable forests, special regard being, at the same time, paid to the staff available and to the amount of responsible supervision that could be exercised in each division for the execution of the work within the limited time available for real early-burning. The average annual cost during the previous quinquennium was Rs. 14,000, as against Rs. 7,000 during the period under report. The expenditure in 1928-29 was, however, only about Rs. 4,000, as much of the work was done exclusively by the staff. In 1928-29, 689 square miles were dealt with under early-burning, at an average cost of Rs. 4-2-0 per square mile. A small area of 6 square miles was dealt with under special protection by a system of fire lines, at a cost of Rs. 5-15-0 per square mile. In the rest of the area of 3,691 square miles comprised in the Circle, all the old fire lines were maintained at a cost of Rs. 1,186.

12. *Protection from cattle.*—Owing to several changes in administrative and divisional charges, no comparison is possible of the position during the period under report, with the previous quinquennium. Areas primarily intended for grazing have been handed over to panchayats. The area opened to grazing at the end of the period was 4,119 square miles, out of 4,386 square miles, and it forms 94 per cent of the total area. The number of cattle, licensed to graze during the period, expressed in cow-units was 332,962 which works out to about 8 acres per cow-unit on an average for the whole Circle.

The block system of grazing was abolished during the period, and it was replaced by a range-wide system which enabled cattle to graze in all the reserves of a range on a single permit.

The rate of grazing fee remained the same as in the last quinquennium, except in the *Cuddapah district* where it was enhanced from three annas to six annas a cow-unit from 1928-29. Even so, there are varying rates in different divisions, i.e., three annas, six annas and eight annas a cow-unit. On the subject of the unification of grazing fees in all the divisions, a special report was submitted during the quinquennium on which orders of Government were awaited at the close of the period.

The Committee appointed to enquire into the forest grievances in the Kurnool district concluded its enquiry and orders of Government were passed on the several questions discussed in the report of that body.

13. *Yield and outturn.*—No true comparison with the previous quinquennium is possible, due to changes in the administrative and divisional charges, and to the transfer of the ryots' forests to panchayats. It may, however, be observed that the chief feature during the period under report was the replacement of departmental agency by contractors in the working of timber, fuel, bamboo and minor forest produce areas with, at the same time, adequate provision for supply of fuel, and small timber for agricultural

implements, to ryots at cheap rates at edge of coupes. The proposal which was, at one time, made for large scale timber operations in the Nallamalais, under modern methods, with mechanical appliances, etc., was thrown out, after investigation, as unsuitable and uneconomical and, instead, special steps were taken for increasing the annual output of timber, fuel and bamboos by bringing in all the economically workable areas under fellings, in the usual way, through lessees, on the basis of the working plans framed for the purpose in the *Kurnool South* and *East* divisions, with gratifying results.

The following statement shows the yield of timber and other produce during each of the past three years from the reconstituted six divisions now in the Circle, after nearly all changes in the area had been completed at the close of 1925–26 :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos in value.	Minor forest produce in value.
			Rs.	Rs.
1926–27	770	4,075	73,751	3,19,736
1927–28	721	5,631	64,237	3,15,120
1928–29	771	5,096	66,908	3,93,862

14. *Financial results.*—While no true comparison is possible of the financial results of the period under review with those of the previous quinquennium, some idea may be gathered of the progress during the period under report, in regard to the financial position of the Circle as at present constituted as compared with that of the same forest divisions in 1923–24 (the last year of the previous quinquennium), in spite of the latter year and also the years 1924–25 and 1925–26 including the revenue and expenditure on account of the ryots' forests which have, from the beginning of 1926–27, been practically all transferred to the panchayats :—

Year.	Revenue.	Expenditure.	Surplus plus or deficit minus.	Remarks.
	Rs.	Rs.	Rs.	
1923–24 ..	7,98,334	7,93,290	+ 5,044	Excludes Madanapalle range figures included in the Circle from 1926–27.
1924–25 ..	7,96,450	7,68,126	+ 28,324	
1925–26 ..	9,20,607	7,46,287	+ 1,74,320	
1926–27 ..	9,00,706	6,87,489	+ 2,13,217	
1927–28 ..	9,00,588	6,17,328	+ 2,83,260	
1928–29 ..	9,45,386	5,17,142	+ 4,28,244	

The above figures show that what was a surplus of only Rs. 5,044 during the year prior to the period under report, has been steadily increasing every year until, at the close of the period under review, it has reached a record. The special feature of this period is that one of the deficit divisions (*Cuddapah South*) was converted into a surplus one during 1928–29, while the annual deficits in *Cuddapah North and Kurnool East* were considerably reduced during 1928–29, the remaining divisions having had generally a steadily increasing surplus until the maximum had been reached in 1928–29.

15. *Hill tribes.*—The ameliorative works connected with the uplift of the Chenchus in the Kurnool district were continued during the period under review, at the expense of the Forest Department, the average annual expenditure incurred being Rs. 25,834 during the last three years for which the expenditure had been recorded separately.

The monthly earnings of the Chenchus had increased considerably during this period, on account of the steadily increasing occupation provided by the department for all the able-bodied, in the shape of timber, fuel and bamboo felling work. But they continued to be apathetic to agricultural pursuits and the progress in this direction was practically nil. In the matter of education, the curriculum of studies, it is feared, has not perhaps been on right lines and this and other connected matters have come under separate investigation after the close of the period under review.

K. R. VENKATARAMANA AYYAR,
Acting Conservator of Forests, II Circle.

BELLARY,
6th September 1929.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1929.

THIRD (WORKING PLANS) CIRCLE.

INTRODUCTION.

In the course of the year the preparation of a Working Plan for the sandal bearing forests of North Coimbatore division was taken up and work of stock-mapping and enumeration is in progress.

The special regeneration experiments started in the Kannikatti forests of the Tinnevelly district were continued by the Assistant Working Plans Officer, Tinnevelly.

2. Preparation of tables of yield of scented sandalwood (according to girths of standing trees) along with the necessary graphs were prepared for four ranges of Vellore division by Mr. C. R. Ranganathan, Deputy Conservator of Forests, who was on special duty from 12th March 1928 to 6th April 1928. Similar work regarding the other sandal areas, where proper accounts of the complete stem and root yield from individual trees are maintained, will be attended to on receipt of the necessary information from the Conservator of Forests, IV Circle, with whom the subject is under correspondence.

3. The preparation of volume tables for certain deciduous species, referred to in the last report, is under progress and is being attended to.

Volume tables for *Terminalia paniculata* based on 900 trees felled in Nilambur division have been compiled to-date.

4. The final proofs of the Madras Forest Pocket Book were sent to the Press after the close of the year and the book is expected to be issued shortly.

5. For silvicultural research the progress already made has been maintained and the special feature is the attention paid to the problem of successfully growing a second rotation teak crop in Nilambur.

Extensive experiments regarding the regeneration of certain areas with the evergreen species, are being conducted in the Dhoni and Silent Valleys (Palghat division).

6. The Working Plans Conservator (Mr. Minchin) and the Forest Research Officer (Mr. Littlewood) were deputed to attend the Silvicultural Conference held at Dehra Dun from the 18th March 1929. The Conservator read a paper "Regeneration of evergreen forests" and which is published at pages 51 to 56 of Part II of the Notes and Papers to be read at the Conference.

CHAPTER I.—DETAILS OF WORK UNDERTAKEN IN CONNEXION WITH THE PREPARATION AND REVISION OF WORKING PLANS.

Working Plan for the deciduous forests of Wynad division.

7. This Plan was completed within the year and sanctioned by the Chief Conservator of Forests in his Proceedings No. 127 of 1929, dated 8th April 1929.

Revision of the Working Plan for the Sal forests of Ganjam division.

8. The work has made considerable progress and stock-mapping for a large area has been finished by the Working Plans Officer with the help of his rangers and foresters. It is expected that this Working Plan will be completed by about December 1929.

Revision of Mount Stuart Working Plan.

9. Three parties were employed under the Working Plans Officer and completed 7,290 acres during 1928–29, bringing the total area cruised up to 11,182 acres. Progress was slow owing to the limited staff available and due to heavy incidence of sickness during the months of January to March. The area remaining to be completed is about 11,300 acres, and arrangements have just been made to increase the staff employed for this Working Plan area and hence the progress henceforth will be more rapid.

Working Plan for forests of South Mangalore.

10. A reconnaissance report was drawn up by the Working Plans Officer and it was forwarded to the Chief Conservator of Forests and his general orders regarding the manner of future working were obtained.

The following is a brief resume of progress of field work carried out in 1928-29 in Mangalore South :—

Approximately 27,500 acres were stock-mapped, according to silvicultural types in Sampaji (part), Thodikan, Bantemale, Aranthakallu, Balpa, Yenekal and Mujur reserves and detailed compartment descriptions were prepared.

In addition 6,900 acres in Bhagimale reserve was roughly stock-mapped for Mesua areas and Bhagimale reserve (7,000 acres) were reconnoitered for Hopea, Poon, Mesua, and Artocarpus.

Enumerations over 160 acres in Sampaji reserve were also completed.

Working Plan for the Dhoni, Silent and Attapadi Valley reserves of Palghat division.

11. Assistant Working Plans Officer Mr. T. V. Venkateswara Ayyar was posted for this duty from the beginning of January 1929, and up-till March was engaged in laying out felling series, selecting areas suitable for teak planting, etc., in Chenat Nair reserve with a view to revise the rough scheme drawn up by Assistant Conservator Mr. Lasrado.

Working Plan for the Nallamalai forests, West Kurnool division.

12. The Assistant Working Plans Officer (Mr. H. E. Brown) joined the division on 7th January 1929 and till March 1929 was engaged in reconnoitering the forests in the Bairluty, Gundlabrahmeswaram and Nandyal ranges. He was able to complete stock-mapping of about 2,000 acres of the Velgode and Nandyal reserves.

CHAPTER II.—SILVICULTURAL RESEARCH AND EXPERIMENTS.

13. Mr. Littlewood was Forest Research Officer throughout the year. It has been decided that his report is, in future, to be printed as a bulletin. The following account therefore merely outlines the work done by him and refers to any final or intermediate results obtained.

I. Experimental Silviculture.

(i) *General.*

14. (*a*) *Teak.* (*Tectona grandis*) *Second rotation teak areas.*— The difficulty of establishing a satisfactory second rotation teak crop on clear felled plantation areas at Nilambur has been referred to in the reports of former years. The beneficial effect of soil aeration by

ploughing has been noted previously. An experiment on a very small scale conducted in the year under review, where soil aeration on such an area was very thoroughly achieved by two forkings, the latter one at the close of the monsoon, confirms the conclusion drawn before. It confirms also, in a somewhat striking manner, the effect (noted in the report for 1926-27) which a thorough soil aeration has in prolonging the growing season. The Forest Research Officer suggests that this is likely to be the solution of the problem of raising second rotation teak crops. On clear felled plantation areas the soil, already somewhat exposed and impoverished, cannot be given the chemical and physical benefits of a good burn, as there is little waste material for burning. It is thought that a thorough aeration of the soil, by whatever method proves cheapest on a large scale, will largely counteract this disadvantage.

Cover crops.—Plots at Nilambur were devoted to studying the question of introducing a soil improver in second rotation teak crops. Boga (*Tephrosia candida*) and *Centrosema pubescens* were introduced *with* the teak. It was thought that these might serve the double purpose of soil-improver and weed-suppresser. Centrosema failed to establish itself, but boga grew well. As a weed-suppresser however it was not a success. It was more trouble and expense to grow it, and latter to control its growth, than to carry out ordinary weeding and soil aeration. Whether it can be used successfully as a soil-improver in teak plantations remains to be seen. It is now realized that in Travancore it is introduced in the plantation's second year, and is regarded as a soil-improver pure and simple. Further experiments on these lines are being undertaken by the District Forest Officer.

Teak grown from stumps.—Some alarm was occasioned by cases of unsoundness found in young teak, raised from stumps, which were examined by the Forest Research Officer at Nilambur. Further investigation in Palghat, Kurnool and the Nilgiris does not give conclusive results, but appears to indicate that, in the drier districts at all events, there is probably little to be feared, provided the work is properly done. It is in the drier districts that the use of stumps (with their more rapid early growth) possesses the greatest attractions. The matter will be pursued further.

15. (*b*) *Rosewood* (*Dalbergia latifolia*).—In Bolampatti Plot No. 45 (Palghat district) rosewood raised in 1926 by sowing on bunds with field crop cultivation between continues to do exceedingly well, in spite of some browsing. An experiment on similar lines has been started at Nilambur. Both here and at Mount Stuart (by Mr. Laurie) it has been found that young rosewood must have its head

kept free, but the side shade of coppice and weed growth appears to have a beneficial effect. As might be expected soil aeration was found to benefit, to a very marked degree, the growth of young rosewood.

16. (*c*) *Vengai* (*Pterocarpus Marsupium*).—Experiments at Mount Stuart (by Mr. Laurie) confirm observations previously made that this species is *very* tolerant of weed growth, and appears to continue vigorous and healthy even when completely smothered by weeds. In Mettupalaiyam Range a similar observation was made by the Forest Research Officer.

17. (*d*) *Acrocarpus fraxinifolius*.—Both sowings and plantings at Nilambur have failed, confirming experience in Palghat noted in last year's report. Stump planting in Palghat gave indifferent results.

But at Neelikal in the Silent Valley (Palghat) dibbling of seed in openings caused by light selection fellings shows promise, though it is too early to draw conclusions.

18. (*e*) *Improvement of coppice coupes*.—It seems almost certain that poor fuel forest, typical of the hotter and drier districts must tend to deteriorate under a system of simple coppice fellings. In most of such areas regeneration, other than from the coppiced stools, is conspicuously absent. A very large area is treated in this way throughout Madras. The problem of improving coppice coupes by the introduction of fresh stock of suitable species is therefore a pressing one. In many districts attempts have been made in this direction in the past without producing any very notable results. The matter has now been taken up by the Forest Research Officer who has opened plots in the fuel areas of Mettupalaiyam Range.

19. (*f*) *Stocking gaps caused by Selection fellings*.—At Mount Stuart in deciduous forest Mr. Laurie succeeded in stocking gaps caused by the removal of trees in selection fellings with seedlings of useful species. Unfortunately the surrounding bamboos have flowered, so the effect of side shade on the development of the seedlings cannot be studied.

Attempts to regenerate similar "funnels" in evergreen forest in the Silent Valley and at Kannikatti in Tinnevelly district have also been made, with encouraging results—but it is much too early to draw conclusions.

(ii) *Natural Regeneration.*

20. The Forest Research Officer continued to observe the evergreen forest natural regeneration plots at Sappal (Palghat).

In Karian Shola (South Coimbatore) plots were opened to ascertain how to deal with the dense mass of Strobilanthes which comes in and swamps all natural regeneration as soon as an opening is made in the canopy.

In Ganjam the Working Plans Officer (Mr. M. Kesavanunni Nayar) continued his experiment in the Rambha Ravine area, the object of which is to find out how to obtain natural regeneration of Sal (Shorea robusta) in ravine areas where Sal regeneration is absent or deficient. A bad seed year interfered with this as an experiment in *natural* regeneration; but by broadcasting selected seed results were obtained which may be regarded as encouraging.

(iii) *Seeds.*

24. Five new species were added to the list of weights of seeds.

Germination tests were made with seed of Acrocarpus fraxinifolius, of Sandal, and of Mesua ferrea. Seed of the first named species was found almost entirely infertile after storing for one year. Seed of Mesua remained fertile for only about 6 weeks after collection.

At Nilambur experiments with teak seeds of different origin were undertaken. Soaked and unsoaked seed from:—

(1) Mount Stuart (natural forest)
(2) Nilambur (natural forest)
(3) Selected trees in Nilambur plantations, and
(4) Unselected trees in Nilambur plantations

were sown in varying kinds of nursery bed (all 4 kinds in each kind of bed). Except in No. 4 (above) seeds were from the best class of seed-bearer to be found. Results indicated that, except with Mount Stuart seed soaked seed gave the best results in quicker and more even germination. Soaked natural forest seed did better than any others, but unsoaked plantation selected tree seed did better than unsoaked natural forest seed. There was little to choose between soaked plantation seed from selected and from unselected trees. The sunk type of nursery bed gave the best results.

But in subsequent growth (after planting out) the seedlings of all classes evened up and there was little to choose.

(iv) *Nursery work.*

27. Large scale nursery experiments with 10 deciduous and 8 evergreen species were initiated at Dhoni (Palghat). The Nilambur experimental nursery was maintained.

Reference is made above (under " Seeds ") to a nursery experiment with teak seeds of different origin.

Evergreen nursery experiments were also conducted at Kannikatti (Tinnevelly) by the Assistant Working Plans officer.

It was proved that a nursery for Mesua ferrea must be placed in the open. (Neelikal and Karian Shola.)

(v) *Artificial regeneration.*

23. Reference has been made above (" General ") to a number of experiments in artificial regeneration.

In addition may be noted experiments in " notching out " germinating sandal seed (North Salem, by the District Forest Officer), with Red Sanders (Pterocarpus santalinus) by the District Forest Officer, Chittoor.

The plots previously in existence were observed and enumerated. No striking results are recorded.

(vi) *Reclamation and Afforestation.*

Nil.

(vii) *Thinnings.*

Nil.

(viii) *Mixtures.*

Nil.

(ix) *Underplanting.*

24. The Nilambur experiments undertaken with a view to ascertain a method of introducing an underwood under the teak in the plantations were continued. Detailed notes are recorded in the Forest Research Officer's report. The results achieved are not impressive and it cannot be claimed that our knowledge of the subject has advanced appreciably. A point which appears to be established is that fair sized seedlings (in the case of Mesua, and probably with most species) are to be preferred for underplanting as they do not suffer so much from " drip " as smaller seedlings.

(x) *Silvicultural system.*

Nil.

(xi) *Miscellaneous.*

25. An experiment at Nilambur with stumps of *Hopea parviflora, Artocarpus hirsuta, Dalbergia latifolia, Lagerstroemia lanceolata and Mangifera indica* from plants varying from 1 to 3 years old tends to show more successful results from stumps from the older plants. Stumps of Artocarpus hirsuta did well—a point of special interest, as so far attempts to raise this species by other methods have met with very little success.

II. Working Plans and statistics.

(i) *Working Plans.*

26. Working Plans are dealt with elsewhere in this report.

(ii) *Yield tables.*

Nil.

(iii) *Volume tables and Form factors.*

27. A provisional volume table for Terminalia paniculata in Nilambur District was prepared by Mr. Pearce, Logging Engineer, based on measurement of 900 trees.

Figures for the preparation of volume tables for a number of species are accumulating in the Forest Research Officer's office and it is expected that provisional tables can shortly be prepared.

(iv) *Bark measurements.*

Nil.

CHAPTER III—ADMINISTRATION.

28. Mr. A. Wimbush held charge of the circle up to 3rd August 1928 and afterwards Mr. A. A. F. Minchin up to the end of the year.

29. The following officers were attached to the circle as Working Plans Officers, officers on special duty and Assistant Working Plans Officers :—

Name of officer.	Period.
Working Plans Officers.	
Mr. R. S. Browne	Up to 6th April 1928.
Mr. J. Coode	Up to 13th December 1928.
Mr. M. V. Laurie	Throughout the year.
Mr. M. Kesavanunni Nayar	
Mr. P. W. Davis	
Mr. C. R. Ranganathan	From 6th April 1928 to the end of the year.
Officers on special duty.	
Mr. C. R. Ranganathan	Up to 6th April 1928.
Assistant Working Plans Officers.	
Mr. M. H. Krishnaswami Ayyar ...	Up to 1st June 1928.
Mr. B. S. Kesava Vittal	Throughout the year.
Mr. T. V. Venkateswara Ayyar	From 3rd January 1929 to the end of the year.
Mr. H. E. Brown	From 7th January 1929 to the end of the year.

30. Mr. A. M. C. Littlewood held charge of the office of the local Silviculturist throughout the year.

TOURS.

31. The Conservator visited all the localities where works were in progress.

He also toured in the Nallamalais with the Conservator, II Circle, in the North Coimbatore Division with the Conservator, V Circle, and in the Silent and Attapadi Valleys and the Sandalwood Kumri areas in Coorg with the Chief Conservator of Forests.

HEALTH.

32. The health of the establishment during the year was on the whole satisfactory.

APPENDIX 9

SUMMARY OF PROGRESS DURING THE FOUR YEARS, 1924-25 TO 1928-29.

ADMINISTRATION AND CONTROL.

The old III (territorial) Circle with headquarters at Madras as constituted in February 1921, was abolished on 1st May 1925 and the present III (Working Plans) Circle with headquarters at Ootacamund, was constituted from the same date in accordance with G.O. Mis. No. 1008, Development, dated 14th July 1925. Soon after the formation of this Circle, the Forest Research Officer who since the creation of the post in 1919 was attached first to the V Circle up till 1924 and then to the VI Circle, was transferred to the control of the Working Plans Conservator.

Hence this *report covers the period of last four years* beginning with May 1925, though the review of the Research branch is for full five years.

The following officers were in charge of the Circle since its formation :—

Year.	Officer.	Period.
1925-28	Mr. A. Wimbush	From 1st May 1925 to 3rd August 1928.
1928-29	Mr. A. A. F. Minchin ...	From 4th August 1928 to 31st March 1929.

STAFF.

The sanctioned staff of the new circle was—

One Conservator of Forests.

Five Working Plans Officers

Three Assistant Working Plans Officers (belonging to Provincial Service) and ten Rangers.

In addition the following clerical staff for Direction office and for Working Plans Officers was sanctioned :—

One head clerk,

Three clerks (one post since abolished as a retrenchment measure from 1st March 1928),

One draftsman, and

One typist.

Five clerks (one for each of the five Working Plans Officers).

During the first two years of the existence of this Circle, little progress could be made in the preparation and revision of Working Plans, mainly due to shortage of suitable men for posting as Working Plans Officers, nor could the full sanctioned cadre of Rangers be filled up at once for lack of men available for transfer from other circles.

The following list shows the progress made by the Circle up till March 1929, in the matter of preparation of new plans or of revising existing ones in the whole Presidency :—

NEW WORKING PLANS.

Year of sanction.	Name of Working Plan.	Area covered by the Working Plan.
		ACRES.
1926-27	Punachi forests of South Coimbatore division	2,162
1926-27	Bolampatty Valley of Palghat division ...	25,518
1928-29	Working Plan for the deciduous forests of Wynad division	100,336
	REVISION OF EXISTING WORKING PLANS.	
1926-27	Revised Working Plan for Beypore tope ...	42·55
1926-27	Revised Working Plan for the Walayar forests of Palghat division	9,600
1927-28	Revised Working Plan for the Mudumalai forests of the Nilgiri division	65,905
1928-29	Revised Working Plan for the Nilambur Valley forests	81,031

WORKING SCHEMES.

Revised scheme for working Blocks II and III of the Snowdon Working Circle of the Nilgiri Division.

Brief scheme for the conversion of Bingham and Brooklands, Hunt Coverts to Eucalypt Hardwoods.

Experimental scheme for certain timber areas in the Vannathiparai forests of the Cumbum Valley of Madura district.

The following Working Plans are now under preparation.—

Working Plan for Mount Stuart forests of South Coimbatore division.
Working Plan for the Sal forests of Goomsur in Ganjam.
Working Plan for the forests of North Coimbatore division.
Working Plan for the forests of South Mangalore division.
Working Plan for the Nallamalais of Kurnool.
Working Plan for the Chenat Nair, Silent Valley, etc, forests of Palghat division.

In addition, in the first year, one Working Plans Officer and an Assistant Working Plans Officer were employed for a greater part of the year in continuing to supervise the cruising work carried on by the Logging Branch as they were employed on that work prior to their transfer to this circle. These officers also plotted maps and tabulated data from statistics collected by cruising parties in four localities in the Mount Stuart, North Mangalore, Nilambur and Palghat divisions.

The control records of all Working Plans at present in force in the Presidency, are annually scrutinized by the Working Plans Conservator.

General.

The preparation of a Forest Pocket Book for the Madras Presidency was taken up and completed by the Working Plans Conservator. The Chief Forest Engineer and certain Conservators assisted with matters relating to Forest Engineering and to various timber species. The book is now in the Press and printed copies are expected in the near future.

The work of preparation of Volume Tables for certain deciduous species has been taken up and is being attended to by the Forest Research Officer.

The special work of 'weight-outturn tables' for sandalwood was commenced in 1928 under the orders of the Chief Conservator, and up-to-date such tables with the necessary graphs have been completed for four ranges of Vellore division.

The office of the Logging Engineer was transferred from Madras to Ootacamund in 1928, in order that closer co-operation between the Working Plans Conservator and the Logging Engineer might be maintained.

About the close of the quinquennium the Conservator of Forests (Mr. Minchin) and the Forest Research Officer (Mr. A. M. C. Littlewood) were deputed to attend the Silvicultural Conference held at Dehra Dun. The former availed of the opportunity and read a paper on "Regeneration of Evergreen Forests" (which is published in Part II of the Notes and Papers to be read at the Silvicultural Conference).

Steady progress relating to the more urgent research problems of the Presidency has been maintained and is dealt with in the review prepared by the Madras Forest Research Officer, for the Quinquennium ending March 1929 and which is herewith enclosed.

F. R. MADAN,
Acting Conservator, III (Working Plans) Circle.

OOTACAMUND,
28th August 1929.

QUINQUENNIAL REVIEW OF FOREST RESEARCH IN MADRAS FOR THE PERIOD ENDING 1928-29.

I. General.

The Research Office which was transferred to Ootacamund in April 1924 continued to be located there. At the end of the previous quinquennium it was under the control of the Conservator of Forests, VI Circle, but in 1925 it was transferred under the control of the Conservator of Forests, III (Working Plans) Circle.

2. Mr. J. M. Sweet was the Provincial Silviculturist till March 1925, when Mr. J. D. Connolly took over. The latter went on long leave at the end of March 1928, since which time Mr. A. M. C. Littlewood has held charge.

II. Research.

3. Research work in Madras has so far been almost exclusively confined to the West Coast districts.

4. A study of the more important species of the evergreen, semi-evergreen and deciduous forests constituted the chief duty of the Silviculturist during the period under review. The work was carried out almost entirely by the maintenance of experimental plots both for studying natural regeneration and for the purpose of artificially raising crops and watching their development under varying conditions.

5. A good deal of nursery work was also undertaken in both the ranges of the Nilambur division and in the drier forests on the west of Coimbatore.

6. The results of those experiments have been recorded in the annual reports issued by the Research Officer and it is unnecessary here to give more than a very brief idea of the more important of them.

7. The necessity for underplanting the teak plantations in Nilambur has perhaps been the chief problem tackled and among a large number of species tried with varying degrees of success the following are the more important:—

(*a*) Hopea parviflora,
(*b*) Artocarpus hirsuta and integrifolia,
(*c*) Sweitenia macrophylla,
(*d*) Hydnocarpus Wightiana,
(*e*) Mesua ferrea,
(*f*) Vateria indica,
(*g*) Filicium decipiens,
(*h*) Hardwickia pinnata, and
(*i*) Carrallia integerrima.

It will of course be many years before final results are established.

8. Improvement of second rotation teak in Nilambur has also been an important problem and experiments connected therewith have resulted in a certain measure of success. The growing of second rotation teak in conjunction with field crops was tried and proved impossibe under conditions obtaining at Nilambur.

9. Attempts at improvement of poor coppice forest in dry areas were started as also a study of the regeneration of Dalbergia latifolia, Pterocarpus Marsupium and Azadirachta indica in conjunction with field crops.

10. Apart from the question of growing evergreens under teak at Nilambur some of the more important of them, viz., Mesua ferrea, Calophyllum tomentosum and Acrocarpus fraxinifolius have been under study in their habitats both in connexion with natural regeneration and artificially raised crops.

11. Generally, much has been learnt about the silviculture and the silvicultural treatment, in the lower age classes, of many species.

III. Statistical information.

12. A large number of sample plots opened originally by the Research Institute, Dehra Dun, or by District Forest Officers, were brought under the control of the Provincial Silviculturist and maintained by him. In addition, several were formed by him in second rotation teak and in the hardwood Eucalyptis on the Nilgiris.

A party from Dehra Dun came to Nilambur in the winter of 1927 and gave the local establishment practical demonstration in respect of the formation and measurement of sample plots by the Standard method.

IV. Ledger files.

13. Three hundred and seven specific and 38 miscellaneous ledger files on the model of those in use in the Research Institute, Dehra Dun, were maintained and kept up-to-date.

V. Establishment.

14. The clerical establishment remained at the end of the quinquennium as it was at the beginning : the executive establishment which, five years ago, consisted of 2 Rangers, 1 Forester and 2 Forest Guards had been reduced by the end of the quinquennium to 2 Rangers and 1 Forest Guard. It having been found impossible to carry on with so attenuated a staff, an increase was recently asked for and sanctioned.

A. C. LITTLEWOOD,
Forest Research Officer.

Forest Research Office,
18*th August* 1929.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1929

FOURTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

Reserved forests and reserved lands.—Three thousand two hundred and eighty-one acres were disforested, of which 2,415 acres represent the area of coffee estates on the Shevaroys which were disreserved and transferred to the control of the Revenue Department. 626·06 acres is the area in Vanavasi Panchayat Forest in *South Salem* disreserved for the Mettur Project. The balance consists of small items in *Vellore* and *Central Salem*. 801 acres were added by resurvey and correct computation in *South Salem* and 13·55 acres of reserved land were notified as reserved forest in *Central Salem*.

The net area at the close of the year was 3,856 square miles.

Forty-eight square miles of departmental forests were transferred to the control of panchayats during the year.

2. FOREST SETTLEMENT.

2. An area of 13·55 acres in Varanjaram reserved land in *Central Salem* was notified under section 16 of the Forest Act with effect from 28th March 1929.

3. DEMARCATION.

3. Permanent demarcation of Aiyur extension reserved forest and Hudaidurgam reserved forest in *North Salem* was carried out during the year to a distance of 24 miles 3 furlongs at a cost of Rs. 323. Rupees 18 was spent in *Chittoor* to cut a new line in Karapet reserve 29 chains long to separate the area handed over to panchayats, and to demarcate Venkatagirikota road passing through Nayakaneri extension reserved forest and Paddanayakdrug reserved forest. The existing boundary lines of reserves were maintained

by the protective staff. *Chittoor.*—Rs. 36-4-0 was spent in replacing a broken boundary stone in Panapakkam reserved forest and in demarcating a portion of Nayakaneri reserved forest by means of a cut line 12 feet broad for a length of 3½ miles, and Rs. 75-1-6 for whitewashing cairns in all the ranges of the division. *Vellore.*—Rs. 32 was spent on reclearing the top boundary lines of Inner Javadis, Andiappanur and Mambakkam reserves in Alangayam range over a length of 15 miles and on replacing a broken stone slab in Mulakad reserve. In *North Salem*, Rs. 153 was spent in repairing cairns and clearing lines. In *Central Salem*, line clearing was done for 329·60 miles at a cost of Rs. 746-12-0. Rs. 32-4-0 was spent in clearing the boundaries of Aranah and Thirthagiri reserved lands, the total length being 16 miles and one furlong. In the same division Rs. 1,060-2-0 was spent on clearing coupe and strip lines and Rs. 138-12-0 on planting coupe corner stones in the coupes already worked.

4. Forest Surveys.

4. (*a*) There was no survey by the Survey of India.

(*b*) Party No. III of the Madras Survey took up the resurvey of Omalur, Atur, Salem, Namakkal, Rasipur and Tiruchengode revenue taluks, and incidentally surveyed the boundaries of reserved forests adjoining patta holdings. In the Trichinopoly district, the resurvey plan of Musiri taluk showing the reserved forests is reported to have been supplied and the plan for Perambalur taluk is said to be still under preparation. This contains part of the Pachamalai reserves under departmental control. The survey of Bailnad, Adukkam-Puducombai and Perumalmalai reserved lands sanctioned in G.O. No. 1382, Development, dated 21st August 1928, was taken up by the same Survey Party in March 1929.

(*c*) The survey of coupes was as usual carried out departmentally.

(*d*) Reference maps were maintained in all the divisions.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of regular working plans.

5. (*a*) *Preparation.*—The consolidated working plan for the *Chittoor* division referred to in the previous year's report was sanctioned by the Chief Conservator in his Proceedings No. 312, Press, dated 30th August 1928. In *North Salem*, a tentative scheme for working sandal in Dharmapuri range was prepared by the District Forest Officer and sanctioned by the Conservator. An Extra Assistant Conservator has since been posted for the preparation of a consolidated working plan for the whole division for fuel,

bamboos, timber and grazing and for the révision of the Hosur sandalwood working plan. In *Central Salem*, the preparation of a consolidated working plan for the whole division was entrusted at the close of the year to an Extra Assistant Conservator specially posted for the purpose and the plan has since been completed. The preparation of a consolidated working plan for the whole division in *South Salem* is similarly being attended to by an Extra Assistant Conservator posted specially to that work.

(*b*) *Control.*—The prescriptions of the sanctioned working plans and schemes were generally adhered to in all the divisions. As mentioned in the previous year's report, the extraction of sandalwood is confined to dead trees only.

2. Communications and Buildings.

(a) *Roads and Bridges.*

6. The cost of new works and repairs during the year was Rs. 6,543 and Rs. 13,115 against Rs. 5,124 and Rs. 10,428 respectively in the previous year. The principal new works undertaken during the year were—

Chittoor.—Forming a road from Bhakarapet to Talakona temple.

Vellore.—Completion of Jamnamarathur-Barghur cart track and completing the plateau section of the Amerdi-Nadanur road (Latham's road).

North Salem.—(1) Construction of an Irish bridge over the Deverbetta-Gopasandiram road.

(2) Construction of a culvert at the entrance of the rest-house compound at Denkanikota.

South Salem.—Construction of an approach road connecting the Naducombai rest-house with the Local Fund road from Kalappanayakanpatti.

(b) *Buildings.*

7. The expenditure on new buildings and the maintenance of the existing ones (including the pay of watchers) during the year was Rs. 6,519 and Rs. 12,376 against Rs. 24,379 and Rs. 13,415 in the previous year. The principal new buildings constructed during the year under report were—

Vellore.—Improvements to the Range Officer's quarters at Alangayam by providing kitchen and stables.

North Salem.—Part construction of a new Range office for Denkanikota West range, (2) construction of a motor garage at Deverbetta, and (3) completion of an inspection shed at Gerhatti.

Central Salem.—Conversion of a stable attached to the rest-house at Harur into a motor garage, (2) providing lintels to Sanniyasimalai inspection shed, and (3) compensation paid for acquisition of land at Modur.

South Salem.—Completion of a rest-house with outhouses at Naducombai, clearing the compound and site of the rest-house, and demarcating with F.D. stones, and (2) part construction of a Range office building at Namakkal.

(c) *Miscellaneous.*

8. The cost of new works and repairs during the year was Rs. 3,564 and Rs. 534 against Rs. 807 and Rs. 662 respectively in the previous year. The chief items of new works undertaken were—

Chittoor.—Sinking a trial well shaft for subordinates' quarters at Nagapatla, and (2) construction of a well in the compound of the Range officer's quarters at Mamandur.

Vellore.—Deepening of old wells and construction of new wells, and digging of trial shafts at various localities in hill villages.

Deepening of wells in the compounds of Range offices and rest-houses was carried out in *North* and *Central Salem* where necessary. In *South Salem*, the parapet wall of the well in the District Forest officer's bungalow was repaired at a cost of Rs. 268.

3. PROTECTION OF FORESTS.

(a) *General Protection.*

9. The following statement shows the offences registered during the year as compared with the previous year.

Offences relating to reserves dealt with by Forest Officers.

	1928-29. Number.	1927-28. Number.	
Injury to forests by fire ...	236	373	Decrease.
Unauthorized fellings ...	3,850	3,877	Do.
Unauthorized grazing ...	1,136	1,137	Do.
Other offences	236	160	Increase.
Total ...	5,458	5,547	

The decrease in the number of fires was principally contributed by *Central Salem* and is reported to be due to the hot weather not being so unfavourable. It was also due to the fact that in *Chittoor* special care was taken to see that early burning was properly done and in good time.

The increase under 'Other offences' is notable in *South Salem* and is reported to be due to Ponakad cultivation in the Trichinopoly Pachamalais being started by the Malayalees. The action taken was effective.

10. *Sandalwood cases.*—Seven sandalwood cases were detected in *Central Salem* during the year. Six out of the seven cases ended in conviction. They related to illicit possession or removal of sandalwood. In *South Salem*, four important sandalwood smuggling cases were detected, and seven accused who were the chief smugglers were prosecuted. All the accused were sentenced to rigorous imprisonment, ranging from two to six months excepting one accused who was fined Rs. 60. The accused appealed against these sentences, but the appellate court upheld the decision of the lower court with the exception of one instance where the sentence on the accused was reduced from six months to one month imprisonment by the Subdivisional Magistrate, Namakkal.

The Chief Commercial Superintendent, South Indian Railway, Trichinopoly, greatly helped in bringing to light cases of breach of Sandalwood Transit Rules for sandalwood transported by railways.

Nine cases were charged under the Sandalwood Transit Rules and compounded for an aggregate amount of Rs. 420. The compounding fees were paid in all except two cases which were sent up to court after the close of the year.

The villagers bordering the western slopes of the Kollimalais in the taluks of Namakkal and Rasipur harbour smugglers of sandalwood. Veppadi, Palkad and Kallapatti of Perambalur taluk on the east side of the Pachamalais and Gangavalle and other villages bordering the Belur reserve also harbour men of this profession. The co-operation of the police and the public is enlisted under the reward system.

Offences relating to unreserves dealt by Revenue officials.

11. These exclude offences relating to reserves under panchayat management:—

	1928-29. Number.	1927-28. Number.	
Injury to forests by fire ...	4	3	Increase.
Unauthorized fellings ...	4,673	2,657	,,
Unauthorized grazing ...	336	268	,,
Other offences	130	89	,,
Total ...	5,143	3,017	

No convincing reason has been furnished by the Revenue officials for the marked variations. The large increase under unauthorized fellings may be due to increased vigilance.

12. *Cases relating to reserves brought to trial.*—

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1927-28	1,287	1,125	162	12·59
1928-29	723	470	253	35·00

The increase in the number of acquittals was mainly in *Chittoor* division. It is explained that in 199 out of 200 cases taken to court, the accused paid compounding fees in court.

13. *Cases relating to unreserves brought to trial.*—

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1927-28	258	177	81	31·39
1928-29	298	245	53	17·78

14. The percentage of offences personally enquired into by the District Forest Officers and their rangers is given below :—

Division.	District Forest Officers. Percentage.	Range Officers. Percentage.
Chittoor	Nil.	7
Vellore	Do.	8
Salem North	Do.	9
Salem Central	0·26	5
Salem South	Nil.	13

The amount of compounding fees realized during the year was Rs. 44,625 against Rs. 42,604 during the previous year.

The instructions issued in G.O. No. 990, Revenue, dated 13th June 1910, were generally followed in fixing the compounding fees.

Patrol system.

15. The patrol system which was in force for about six months in the previous year in the *Central Salem* division was discontinued during the year under report. Special gangs were occasionally organized under the supervision of the range officers and inspections were made without previous warning which to some extent checked illicit removals. A new coupe in the Kapputhu reserve was opened during the year to provide work for habitual smugglers. The strengthening of the staff in the Toppur section which has been systematically plundered in the past is reported to have had beneficial results. In *South Salem*, a special party was organized in each range during the manure leaf season, and at the commencement

of the grazing year, to prevent illicit removals of manure leaf and illicit grazing. A special patrol party worked in Namakkal range to guard against sandalwood thefts.

In the other divisions the system was not in vogue.

Rewards.

16. In *Vellore* division, a reward of Rs. 69-8-0 was paid to certain forest subordinates of Tiruvannamalai range for the detection of important goat browsing cases. In *Central Salem*, a reward of Rs. 50 was paid to a Police Sub-Inspector, and the District Superintendent of Police, South Arcot, was requested to record a good conduct entry in his service book. Rupees 5 was also sanctioned for payment to a police constable for the help rendered by him in a sandalwood case. In *South Salem*, rewards aggregating Rs. 515 were disbursed during the year to Railway officials, police officials, Village officers, forest guards and private informants for their aid in the detection of important sandalwood cases. Rupees 85 of the above amount were paid to the railway goods staff at Trichinopoly and Karur stations for reporting promptly cases of sandalwood consignments despatched into the scheduled areas without a way permit, the property involved being valued at Rs. 1,050 ; and good conduct entries were made by the Chief Commercial Superintendent in their service rolls.

(*b*) *Protection from fire.*

17. The total area attempted to be protected from fire during the calendar year 1928 was 2,860 square miles of which 2,772 square miles were successfully protected at a cost of Rs. 4,540.

Special protection.—The area under special protection was 1,087 square miles as compared with 1,140 square miles in the previous year. An area of 1,064 square miles was successfully fire protected during the year against 1,074 square miles in the previous year, the percentage of failure being 2·12 against 5·76, a very satisfying decrease.

General protection.—The area under general protection was 1,773 square miles against 1,737 square miles in the previous year, the percentage of failure being 3·67 against 2·81 in the previons year. The area burnt was 65 square miles against 49 square miles in the previous year. The increase was in *North Salem* and is attributed to unusually dry weather and also to spreading of fires from frontier lines.

Early burning.—The operation was carried out in all the ranges of *Chittoor* division during January and February 1929. The system was not followed in the other divisions, which are considered to be unsuited to it.

(*c*) *Protection from cattle.*

18. The total area closed to grazing was 213 square miles, out of 2,875 square miles of reserved forests and reserved lands. Eight square miles of reserved forests were closed to grazing for part of the year in the *Chittoor* division. The area opened to grazing to all animals except goats was 2,654 square miles. The number of cattle impounded during the year was 12,592 against 14,807 in the previous year. The decrease was in all the divisions except *Central Salem.*

(*d*) *Protection against injuries from natural causes.*

19. *Lantana.—North Salem.*—Clearing of *Lantana* was done in all the sandalwood coupes in connexion with the process of enumeration and extraction. A sum of Rs. 408 was spent on the clearing of Lantana with Spike operations and sandal sowing in Jowlagiri reserve and in the eastern boundary of Sameri reserve.

South Salem.—The growth of Lantana along the boundary line of certain reserves was cleared by the Malayalees under the fire reward system.

Creeper cutting.—This was done in all sandalwood areas prescribed for the year and also on other timber trees in the *Chittoor* and *Vellore* divisions.

Spike.—This is dealt with under Research and Experiments.

Bison continued their usual damage, to young sandal trees in all sandalwood areas and especially in special tending areas in the Javadis in the *Vellore* division, and in Kottapatti, Chitteri and Dombakkal reserve, *Central Salem* division. The latter division also reports damage to tender coppice shoots by deer in Anandavadi fuel coupes and damage to Veppam and Thurinji trees by Loranthus.

CHAPTER III.—SILVICULTURE.

Section 1.—Formation and Regeneration of Forests.

(i) *General progress of areas under regeneration.*

20. *Chittoor.*—Natural regeneration of sandal was fairly good except in Gudiyattam range, but that of red sanders was not particularly good except in Chamala range and Muduvaripalle tope. Natural regeneration from seed of *Acacia Sundra*, *Albizzia amara*, *Hardwickia binata*, *Azadirachta indica*, *Chloroxylon Swietenia*, *Cassia auriculata* and *Strychnos Nux-vomica* was fairly good in Chandragiri range. In Chamala range natural reproduction of red sanders, *Canthium didymum* and *Pleurostylia Wightii* was fairly good and that of *Acacia Sundra* fair.

Vellore.—Natural regeneration of sandal was fair on the Javadis owing to heavy rains from August 1928 to January 1929 but owing to exceptionally hot weather that followed, all seedlings died. In the Yelagiris, natural reproduction of *Choloroxylon Swietenia*, *Albizzia amara* and *Acacia Sundra* was fairly satisfactory. The regeneration of *Dendrocalamus strictus* and *Bambusa arundinacea* was satisfactory.

North Salem.—Natural regeneration of sandal was fair in parts of Anchetti, Denkanikota West and East ranges. It was good all over the Dharmapuri range, but proved a failure in Krishnagiri range. The regeneration of *Dendrocalamus strictus* in the Tholuvabetta valley was quite good. Natural reproduction of *Hardwickia binata* and *Chloroxylon Swietenia* was fair in Anchetti range, also that of *Schleichera trijuga*, *Hardwickia binata*, *Melia indica* and *Albizzia Lebbek* in Dharmapuri range; in Krishnagiri range the regeneration of all species was distinctly poor.

Central Salem.—Natural reproduction of Acha was reported to be good in the Cauvery Range and that of sandal was fairly good throughout the division.

South Salem.—A large number of healthy root suckers have come up in the sandal area of T. Kanapadi, V. Kanapadi and Karuppankadythittu series of the Trichinopoly Pachamalais. Natural reproduction of sandal by seed is good throughout the division especially in Belur, Pariyasholai, Vanjarai and Vengamudi reserves.

Natural reproduction of *Dalbergia latifolia*, *Shorea Talura*, *Pterocarpus marsupium* and *Anogeissus latifolia* was good on the Bodamalai ridge. Reproduction of *Chloroxylon Swietenia* is profuse in Tirumanur and the Bodamalai lower slopes especially in the valleys. In the Namakkal-Kollimalais, natural reproduction of Toon is disappointing but that of *Dalbergia latifolia* and *Anogeissus latifolia* is fair.

(ii) *Establishment of reproduction under working plans or schemes (with 34-A).*

(*a*) Mainly natural.

21. Areas covered by the working plan were worked under the coppice system. Reproduction from coppice shoots has been fair but the condition of some of the worked coupes in *Chittoor* division gives rise to anxiety as subsequent growth is very slow. In the fuel series in *South Salem* reproduction of the following species was reported good :—*Acacia planifrons*, *Albizzia amara*, *Canthium didymum*, *Albizzia Lebbek* and *Chloroxylon Swietenia*.

(*b*) Mainly artificial.

22. *Vellore.*—Regeneration by dibbling sandal seeds in blank areas in sandal coupes and in special tending areas proved a failure. Red sanders seedlings raised from nursery beds and planted in pits in the Thaniyar rest-house compound in Polur range are kept watered and are doing well.

North Salem.—Regeneration operations prescribed in the working plan were suspended, but sowings in plots were carried out by the subordinates free of charge. In Krishnagiri range, seeds of *Albizzia Lebbek, Melia indica* and *Eugenia Jambolana* were sown by the fuel coupe contractors in all felled areas.

The results are not encouraging.

Central Salem.—Sandal propagation centres were started in one acre plots free of cost by the beat subordinates but the operation proved a failure.

South Salem.—Seeds of indigenous junglewood tree species sown in the felled coupes of fuel series proved a failure. Sandal seeds were sown in Namakkal, Rasipur and Thuraiyur ranges but the results were on the whole disappointing.

(*c*) Afforestation.

23. Nil.

(iii) *Plantation and other forms of regeneration not under working plans or schemes (with Form 34-B).*

24. *Chittoor.*—506·18 acres of old plantations have been brought under the revised working plan sanctioned during the year under report.

Vellore.—No fresh areas were taken up but blanks in those compartments where previous plantings were unsuccessful were replanted.

Central Salem.—The blank areas of 1926 and 1927 of the Sanniyasimalai plantation on the Shevaroy hill were repitted during the year and basketted seedlings of *Acacia decurrens* were put out. Artificial regeneration was carried on in the Kurumbapatti Palmyra tope and the undergrowth in 25 acres of coupe II was cleared during the year for dibbling of palmyra seeds in the area. A fairly extensive natural regeneration was revealed after clearing the undergrowth.

(iv) *Tending.*

25. General tending was done in all sandal coupes of the year and in the fuel coupes of *North Salem* division except in the unreserve portions included in the coupes. The tending consisted of freeing the crowns of sandal by cutting creepers and overhanging branches of other trees interfering with them. The operation is reported

to have considerably improved, the condition of sandalwood in *Central Salem* and *South Salem* divisions. In addition to tending of Sandal, climbers on other valuable timber species were cut in *Chittoor* division.

(v) *General.*

26. Nil.

SECTION 2.—TENDING OF THE GROWING STOCK.

27. Tending operations were carried out in *Vellore* division in special tending areas but even here regeneration of sandal has been unsatisfactory. Creeper cutting was done in sandal areas outside the Javadis, and in the Chillimalai special tending area of the Mulakad reserved forest (outside the sandalwood working circle) at a cost of Rs. 62-1-0.

Improvement fellings in timber areas at Kilpet coupe III in *Vellore* division were carried out departmentally. Improvement fellings in coupe II of Kottur timber coupe were given on contract under departmental supervision.

CHAPTER IV.—EXPLOITATION.

(*a*) SYSTEM OF MANAGEMENT.

28. The total area under working plans and schemes during the year was 2,566 square miles, and the various sylvicultural systems in force are detailed below :—

	Area in square miles.	Percentage to the total area under working plan.
Selection method	314	12·24
Simple coppice	712	27·75
Coppice with standards	39	1·52
Method of improvement fellings	691	26·93
Unworked or worked with no system ...	810	31·56
Total area under working plans ...	2,566	100·00

(*b*) EXPLOITATION BY DEPARTMENTAL AGENCY.

29. The chief species marketted departmentally was sandalwood. A quantity of 263 tons and 7 quarters was sold in public auction at Tiruppattur against 418½ tons in the previous year and 59 tons 27 quarters at Vellore against 53¼ tons in the previous year.

The total amount realized at both the depots was Rs. 4,78,368 against Rs. 6,35,330 in the previous year. The average price realised was Rs. 1,492 per ton at Tiruppattur and Rs. 1,446 at Vellore against Rs. 1,337 and 1,418 respectively in the previous

year. The decrease in the total quantity in both the depots was 149 tons 46 quarters and it was due to less quantity of wood received from *North Salem* than last year as a consequence of extracting only dead trees instead of dead and diseased trees.

Timber.—One thousand eight hundred and seventy-three cubic feet of timber were extracted in *Chittoor*. Of this quantity, 1,853 cubic feet of timber were sold and the remainder was utilized for departmental works. In *Vellore*, improvement fellings were carried out departmentally in one coupe and 1,377 cubic feet of timber were extracted. The demand for small timber was generally poor. There being no demand for the materials obtained in previous year's felling, 233 cubic feet of small timber were written off during the year; 48 cubic feet represented wastage in conversion, 90 cubic feet were used for building purposes, 210 cubic feet were sold and the balance 796 cubic feet were mainly intended for building purposes during 1929-30. One other coupe was worked by contract agency. In *North Salem*, 2,056 cubic feet of timber of different species were extracted during the year. Of this quantity, 464 cubic feet of *Hardwickia binata* trees were felled from the reserves of Dharmapuri range for testing the market, 47 cubic feet of *Hardwickia binata* was sold for Rs. 94. About 640 cubic feet of miscellaneous species being rejected, pieces were sold for Rs. 34. About 768 cubic feet of timber were used for departmental works. In *Central Salem*, 6 Vanni logs (24 cubic feet) were extracted departmentally from Atur Ghat and its extension for supply to the Industrial Engineer, Madras, at a cost of Rs. 36. Thirty-eight cubic feet of timber was extracted departmentally and utilised for buildings. The value of the timber so utilised was about Rs. 8-5-0 at 4 annas per cubic foot. In *South Salem*, the operation of the previous year of converting into planks and scantlings *Cedrela Toona and Chickrassia tabularis* proved a failure as the materials warped and split. They had to be disposed of at very low prices. Two trees were girdled and converted into 171 cubic feet of cart materials of which 156 cubic feet was sold for Rs. 206, 354 cubic feet of old materials (planks and scantlings) were disposed of for Rs. 340, the total revenue under timber operation being Rs. 546. Besides the 510 cubic feet of timber sold to the public, 66 cubic feet were utilized for departmental building works and 66 cubic feet were the wastage in conversion.

Fuel.—Indicator areas were felled in order to ascertain the average outturn of fuel coupes.

Chittoor.—Fifteen thousand four hundred and ninety cubic feet of fuel was obtained of which 5,044 cubic feet was sold, 1,026 cubic feet being the produce obtained in working indicator areas was

handed over to contractors and 432 cubic feet of fuel was written off. The balance was pending disposal.

Vellore.—Forty-nine thousand and nine cubic feet of fuel was obtained from indicator areas of which 46, 866 cubic feet remained to be sold at the end of the year.

North Salem.—Nine hundred and sixty three cubic feet of fuel was collected by the students of the Vernacular Training School by marking indicator areas, and sold for Rs. 30. Three hundred and twenty cubic feet was collected free of cost for burning bricks for departmental works.

Central Salem.—The outturn was 26,000 cubic feet which was removed by the coupe contractors concerned.

South Salem.—The stock of fuel at the close of the previous year was 18,766 cubic feet and a further quantity of 13,450 cubic feet was cut during the year. The total quantity of 32,216 cubic feet has since been sold.

Bamboos.—Fifty-seven bamboos in *Chittoor* and 342 bamboos in *South Salem* were used for departmental building works.

Minor Forest produce.—In *Vellore* 355 quarters of Divi Divi pods and 71 quarters of other kinds of seeds were collected departmentally. Twenty-five quarters of seeds, mostly sandalwood, were supplied to other districts and 133 quarters were sown departmentally.

Seeds of timber species including sandalwood were collected in all divisions for cultural operations and for supply to other divisions.

(*c*) Exploitation by Purchasers.

30. Except in the cases referred to in the previous paragraphs, fuel and bamboo coupes and minor forest produce farms were as usual sold to contractors. In *Central Salem*, 18,970 cubic feet of Jalari (*shorea talura*), *Terminalia tomentosa*, etc., trees from Pannikaradu and Kottapatti reserved forests were enumerated, marked and sold for Rs. 1,709. The total outturn from all classes of forests by all agencies is compared with similar details of last year in the following statement:—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Gross value of minor forest produce including grass and grazing.
			Rs.	Rs.
1927-28	555	1,270	1,12,589	3,23,310
1928-29	660	1,977	1,24,744	3,70,308

The outturn shows increase under all the items.

Timber.—This year the increase in yield (*vide Form No.* 35) is solely from unreserves; this was due to larger number of darkhast

lands assigned as a consequence of which the number of trees removed from unreserves was greater than that of the previous year.

Fuel.—The increase in outturn (*vide Form No.* 35) was in reserves only. This was due to the fact that (1) the coupes sold during the year in *Chittoor* division were better stocked and certain coupes of that division which had previously been worked under the system of 'Coppice with standards' were worked as 'Simple coppice' which contributed to the large yield, and (2) better prices were realized for coupes in *North Salem* division.

Bamboos.—The outturn is mainly from reserves and the increase in revenue is largely in *Vellore* division. This was due to keen and perhaps rather unhealthy competition during the sale of the year 1928–29, and two more kists having been collected during the year as against three kists only in the previous year.

Grazing.—The increase is in all the divisions for the following main reasons :—

Chittoor.—Due to the seasonal rains.

Vellore and Central Salem.—Due to better supervision.

North Salem.—Due to influx of foreign cattle in Anchetti range.

South Salem.—Due to the popularity of the single permit system for whole ranges, and to the dearth of fodder in villages on account of the adverse season.

Minor forest produce.—The increase was in all the divisions for the following reasons :—

Chittoor and North Salem.—Due to the good crop of tamarind and better prices obtained for other kinds of minor produce also.

Central Salem.—Due to the three year lease of barks.

South Salem.—Due to the three year lease of Avaram and Konnai barks and to better prizes obtained for other kinds of minor produce.

31. *Grazing.*—Of the total area of reserved forests and reserved lands 92·31 per cent was opened to grazing against 92·69 per cent in the previous year. The incidence of grazing in the several districts of the Circle is given below :—

District.	Area in acres.	Cow-unit.	Number of acres per cow-unit.
Chittoor	286,080	59,779	4·79
Vellore	419,200	124,487	3·36
North Salem	359,680	71,175	5·05
Central Salem	454,400	134,137	3·39
South Salem	179,200	46,615	3·84
Total ..	1,698,560	436,193	3·89

There was an increase in the number of cattle grazed during the year as compared with the previous year in all the divisions of the Circle. The explanation given for the increase in grazing revenue holds good here also. The number of acres per cow-unit available during the year was 3·89 against 4·28 in the previous year.

(*d*) Exploitation by Right and Privilege Holders.

32. In *Vellore*, as in the previous year, the system of grazing cattle by the Malayalees at 3 annas per cow-unit and the distribution of separate rewards to them for successful protection of reserves against fire continued. In *Central Salem*, the grazing of cattle of the Malayalees on the Chitteris and Salem-Kalroyans on an initial deposit of 2 annas per cow-unit and the distribution of rewards to hill tribes for the successful protection of reserved forests continued to work satisfactorily. The number of cattle allowed was 5,564 in Chitteris and 5,045 in the Salem-Kalroyans respectively.

Proposals for revising the assessment for the Salem-Kalroyans based on the 1926–27 census of cattle submitted to the Chief Conservator are pending sanction. The assessment for the Chitteris was also revised on the basis of the cattle census of 1927–28 and proposals sent up to the Chief Conservator for sanction are pending final orders. In *South Salem* the concession of free grazing at the time of forest settlement in the Gundur, Ariyur shola reserves in Namakkal range, Palamalai and Kanapadi extension in Turaiyur range was not availed of by the Malayalees as these people are not inclined to take the responsibility of protection of reserves. They prefer purchasing permits for *bona fide* cattle and for foreign cattle from the plains left in their charge by plainsmen for breeding purposes.

The hill village scheme for the Bodamalai reserve submitted to the Chief Conservator to admit of grazing on an initial deposit of 3 annas per cow-unit is pending sanction.

(*e*) Exploitation by Free Grantees.

33. A statement showing details of free grants is appended :—

—	Timber in thousands of cubic feet.	Value.	Fuel.		Bamboos value.	Grazing value.	Other minor forest produce value.	Total.
			In thousands of cubic feet.	Value.				
		Rs.		Rs.	Rs.		Rs.	Rs.
Right-holders ..	..	..	..	..	..	..	..	..
Free grantees ..	38	7,763	..	..	1,970	..	513	10,246

Chittoor.—Four thousand and thirty-two cubic feet of timber, 23,355 bamboos, 146 palmyra trees and 8,500 palmyra leaves were granted free for reconstruction of houses burnt by fire. Thirty-three thousand seven hundred and sixty cubic feet of metal and gravel were removed by the Public Works Department and local fund contractors for Government and Local Fund works. *Vellore*—Free grants were made mainly from unreserves. In one case, 14 palmyra trees were allowed to be removed from the reserves. Two hundred and forty cubic feet of third-class timber and 16 head-loads of bamboos were allowed to the Malayalis for domestic purposes under the forest village system. Details of free grants made from unreserves are given below :—

Number of cases	32
Number of grantees	425
Number of palmyra trees	906
Timber, cubic feet	94
Palmyra leaves, number	236,100

Including removals from reserves, the aggregate value of produce removed by free grantees amounted to Rs. 3,696 as against Rs. 2,638 of the previous year. *North Salem.*—A small quantity of timber, 200 bamboos, 200 palmyra leaves, and 60 cart-loads of thatch grass worth Rs. 111 was granted free to rebuild houses destroyed by fire. *Central Salem.*—Fifteen thousand three hundred and eighty-six cubic feet of timber and 520 head-loads of bamboos worth Rs. 2,559 removed free from unreserves to rebuild houses destroyed by fire. *South Salem.*—Seven thousand cubic feet of timber, 22,072 bamboos worth Rs. 3,312 were removed from reserves and unreserves to rebuild houses destroyed by fire. The Fire Relief Committee afforded facilities by providing funds to destitute people for the cutting and transport of bamboos from reserves to the villages burnt.

CHAPTER V.—FINANCIAL RESULTS.

34. The following statement shows the financial position of the year under report compared with that of the previous year :—

	1928-29.	1927-28.
	RS.	RS.
Revenue	12,89,534*	14,12,177
Refunds	12,666	23,450
Net ...	12,76,868	13,88,727

* The revenue excludes Rs. 2,048 relating to other circles as explained at the foot note of Form No. 39.

EXPENDITURE.

	RS.	RS.
52-A. Capital	18,054	30,963
B. Conservancy and works ...	1,10,591	1,06,316
C. Establishments	4,35,629*	4,35,484
Total expenditure ...	5,64,274	5,72,763
Surplus ...	7,12,594	8,15,964

The surplus as well as the revenue and expenditure were less during the year than they were in the previous year.

35. The various contributions to the gross receipt of Rs. 12,91,582 are detailed below :—

	Per cent.
Major produce, Forest Department	42·79
Major produce, Revenue Department	9·11
Bamboos, Forest Department	10·92
Bamboos, Revenue Department	...
Grazing, Forest Department	15·91
Minor forest produce, Forest Department ...	6·07
Minor forest produce, Revenue Department ...	7·12
Miscellaneous items	8·08
Total ...	100·00

36. Of the expenditure under "B. Conservancy and Works" and "52-A. Capital" 26·36 per cent relates to exploitation, 71·43 to improvement and upkeep of forests and 2·21 to miscellaneous items.

37. The important variations are explained below :—

RECEIPTS.

(i) *By Government Agency.*

Sandalwood.—This is the chief item. The revenue for the Circle during the year was Rs. 4,82,432 against Rs. 6,94,944 in the previous year. The decrease is due to less revenue obtained in *North Salem* division as extraction was confined to dead trees only. Further the yield was comparatively poor as all the big trees had been extracted during the previous years on account of spike. The

* Rupees 3,90,428 given in last year's report is a mistake for Rs. 4,35,484.

quantity sold and the revenue realized during the year as compared with those of the previous year are given below district-war :—

Divisions.	1927-28.		1928-29.	
	Quantity in tons.	Revenue.	Quantity in tons.	Revenue.
		Rs.		Rs.
Chittoor	1	1,561	1¼	1,598
Nellore	101	1,39,274	110	1,82,040
North Salem	368¾	4,92,953	170	2,51,998
Central Salem	19½	26,169	20	28,078
South Salem	26¼	34,987	13	18,718
Other circles	1½	2,200	1½	2,048
Total ..	518	6,97,144	315¾	4,84,480

Timber.—The revenue was Rs. 5,023 against Rs. 4,834 in the previous year. The increase was in *Chittoor* division and it was due to extraction and sale of a greater quantity of red sanders during the year than in the previous year.

Firewood and charcoal.—The revenue was Rs. 895 against Rs. 1,120 in the previous year. The decrease was in *Central Salem* division and it was due to the fact that fuel obtained from indicator areas was handed over to lessees along with the coupes sold.

(ii) *Purchasers—Forest Department.*

38. *Timber.*—Rupees 2,190 was realized during the year against Rs. 4,663 in the previous year. The decrease was due to want of demand for timber coupes in *Vellore* and *Central Salem* divisions.

Firewood and charcoal.—The revenue realized was Rs. 59,344 against Rs. 64,955 in the previous year. The decrease was in *South Salem* division and was due to coupes being sold in the previous year before being handed over to panchayat management.

Bamboos.—Rupees 1,41,004 was realized during the year against Rs. 1,11,731 in the previous year. The increase was mainly in *Vellore* division and was due to the collection of 5 kists during the year, being the first year of the 3-year bamboo lease in Polur, Santhavasal and Tiruvannamalai ranges, as against 3 kists in the previous year.

Grazing and fodder grass.—The revenue realized was Rs. 2,05,460 against Rs. 1,92,950 in the previous year. The increase was in all divisions and it was due partly to seasonal rains, partly to the abolition of the class II forest village system in Tiruvannamalai range, partly to the revised assessments current for three years fixed for the Javadi Grazing Blocks under the Hill Forest Village System, and also in *North Salem* to large herds of foreign cattle being sent to graze in Anchetti range.

Minor forest produce.—Rupees 77,842 was realized during the year against Rs. 59,514 in the previous year. The increase was in all divisions. There was a good tamarind crop in *North Salem*, and the sale of barks on a 3-year lease in *Central* and *South Salem* had a beneficial effect on revenue realised.

By purchasers—Revenue Department.

39. *Timber.*—Rupees 85,579 was realized in the year against Rs. 68,832 in the previous year. The increase was in the three *Salem* divisions, due to greater extent of lands assigned on darkhast during the year than in the previous year.

Firewood and charcoal.—Rupees 32,275 was realized in the year against Rs. 32,103 in the previous year. The difference is small.

Bamboos.—Rupees 6 only was realized during the year against Rs. 342 in the previous year. This is a fluctuating item.

Minor forest produce.—Rupees 91,910 was realized in the year against Rs. 88,391 in the previous year. The increase was due to favourable prices realized for leases in unreserves.

40. *Fines and forfeitures.*—Rupees 4,924 was realised during the year against Rs. 5,220 in the previous year. The increase was in *Vellore* and *North Salem* divisions and was mainly due to collection of heavy fines from contractors.

41. *Other sources.*—Rupees 93,598 was realized during the year against Rs. 77,967 in the previous year. The increase was mainly in *Vellore*, due partly to larger receipts from compounding fees and partly to the adjustment of the amount of about Rs. 4,900 received from the District Board, North Arcot, for improvement of water facilities in the Javadis, in *Central Salem* to higher prices realized for shell leases in the unreserves of South Arcot district and in *South Salem* to (1) recovery of rent of District Forest Office from the Public Works Department, (2) collection of arrear rent and value of the Shevvapet depot on assignment and (3) sale of certain unwanted buildings.

42. *Refunds.*—The actuals during the year were Rs. 12,666 against Rs. 23,450 in the previous year. The decrease was mainly in *Vellore* and *South Salem*, due to less amount of grazing fees refunded under the Forest Village system in *Vellore*, and to refund of lease amount of Vanavasi fuel coupe handed over to Panchayat management in *South Salem.*

EXPENDITURE.

B. Conservancy and Works.

43. The important variations are explained below :—

Sandalwood.—The expenditure was Rs. 32,315 against Rs. 35,905 in the previous year. The decrease was in *North Salem*

division, due to restriction of extraction to dead sandalwood trees only, and in *South Salem* division to there being no extraction of patta sandalwood trees as in the previous year.

44. *II. Forest produce removed by private agency.*—Rupees 36,490 was spent during the year against Rs. 31,764 in the previous year. The increase was in three *Salem* divisions, due in *North Salem* to payment of commission to permit issuing officers for issue of grazing permits as against the issue of permits by foresters in the previous year for which no commission was paid, in *Central Salem* to debit to this head the expenditure for the cutting of indicator areas, and in *South Salem* to the employment of an additional number of watchers consequent on the reduction in the Forest Guards' cadre.

45. *Works.*—Rupees 26,024 was spent against Rs. 24,130 in the previous year. The increase was in *Vellore* and *South Salem* divisions, due in *Vellore* to increased expenditure on repairs to roads, and in *South Salem* to repairs to bridle paths in the Thuraiyur Pachamalais which had been neglected in previous years for want of funds.

46. *IV. Conservancy and regeneration.*—The expenditure was Rs. 12,057 against Rs. 10,792 in the previous year. The increase was in all the divisions except *Chittoor*, due in *Vellore* division to increased expenditure on fire protection operations, in *North Salem* to the expenditure on lac operations being debited to 'Regeneration', in *Central Salem* to the clearing of top lines done in Kurumbapatti and the Hill reserves of the old Kallakurichi range, in *South Salem* division to intensive tending operations of sandalwood, to fire protection operations, and to clearing footpaths.

47. *V. Miscellaneous.*—The expenditure was Rs. 1,767 against Rs. 846 in the previous year. The increase was in *North* and *South Salem* divisions, due in *North Salem* to increased expenditure on spike operations, and in *South Salem* to increase rewards paid to informants and public officers.

52-*A. Capital.*

48. *Purchase of stores, tools and plant.*—The expenditure during the year was Rs. 738 against Rs. 279 in the previous year. The increase was in *Central Salem* division and it was due to the purchase of three new Avery Beam scales.

49. *Communications and buildings.*—The expenditure during the year was Rs. 16,644 against Rs. 30,684 in the previous year. The decrease was in all the divisions except *South Salem*, and it was due mainly to the purchase of the District Forest office building at *Chittoor* in 1927–28 and to the greater number of new buildings constructed that year in other divisions.

50. *Organisation, improvement and extension of forests.*—The expenditure during the year was Rs. 672 against 'nil' in the previous year. The sum was spent for permanent demarcation of Hudaidurgam reserved forest and Aiyur extension reserved forest and for construction of wells in *Vellore* and *North Salem* divisions.

51. 8-c. *Establishment—Pay of Officer—Non-Voted.—Plus* Rs. 13,227 due to a greater number of imperial officers in the circle than in the previous year.

Pay of Officers—Voted.—Minus Rupees 8,213, due to an Extra Assistant Conservator being in charge of each of the *Chittoor* and *North Salem* divisions for part of 1927-28.

Pay of Establishments—Voted.—Minus Rs. 17,920, due to retrenchment and the consequent reduction in the establishment of Foresters and Forest Guards and to fewer Forest Guards being deputed to the Vernacular Training School during the year.

52. *Allowances.—Minus* Rs. 1,661, due to the retrenchment in the Foresters' cadre and to the cutting out of travelling allowance for short touring.

53. *Contract contingencie—Minus* Rs. 755, due to strict economy exercised.

Non-contract contingencies—Rent.—Plus Rs. 8,328, due to the adjustment of difference between standard and actual rents due on residential quarters.

Supplies and Services—General—Apparatus and materials.—Minus Rs. 949, due to less amount spent for purchase of medicines.

54. 8-*c*. ii. *Research—Charges payable to Government departments and others.*—Rupees 9,241 was spent during the year against Rs. 1,558 in the previous year. The increase was due to the reimbursement of cost of experiments carried out by the Indian Institute of Science and payment of pay and retiring allowances to the Institute staff.

The variations under other heads are small and call for no remarks.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

55. In *Chittoor* division the four sample plots intended to record the growth of red sanders under various conditions were maintained. The last measurements were recorded in February 1928.

The experiments to find out the effects of early burning on red sanders regeneration were continued.

In *Vellore* division experiments to ascertain whether sandal is an obligatory root parasite were continued. No final conclusions have yet been reached.

Measurements of height and girth of sandal in sample plots were recorded.

The experiments in the bamboo plots at Komettiyeri were continued and notes of observations were sent to the Research Officer, Ootacamund.

In *North Salem* experiments in lac cultivation were continued. It is now established that lac can be grown successfully on *Shorea Talura* in this division. *Dolichandrone falcata* and *Atylosia mollis* also appear to be good hosts. Wild lac has been found on *Shorea Talura*, *Acacia pennata* and *Ficus retusa*. The disposal of brood lac has not been an easy matter, and it will not pay to grow lac on a large scale until a good market has been assured. Meanwhile further areas in *North Salem* and other divisions will be taken up in order to see what species and what localities are most suitable.

56. *Spike disease of Sandal.*—Spike has spread rapidly in the Yelagiris in *Vellore* division and 4,886 spiked trees were counted during 1928-29. In *North Salem* fresh attacks are reported in the Guttiroyan reserved forest of Dharmapuri range, and in Denkanikota reserved forest, the disease has spread considerably towards the north and east. Though only 60 trees were attacked in February 1927 over 1,000 trees are now diseased.

No spike in sandal is reported from *Central Salem* but spike in *Zizyphus* was common in Harur range.

In *South Salem* spike has spread in Valappur Nad of the Namakkal Kollimalais. Many of the dead stems are found to have bore holes within three feet of ground level, but the insects have not yet been identified.

In the Turaiyur Pachamalais there has been no recrudescence of spike in the spiked area treated in 1925-26, and the root suckers reported last year are still healthy and vigorous.

57. In *North Salem* field observations and experiments in connexion with spike investigation were continued during the year. The results are recorded in the proceedings of periodical conferences held at the Indian Institute of Science, Bangalore. Spike can now be communicated from one plant to another in the laboratory with comparative certainty by means of patch grafting, but in the field it is not so easy to establish infection although fusion takes place in a large percentage of the grafts. The manurial experiments are still in the initial stage. Experiments to test the effect of applications of Atlas solution are being conducted on a larger scale than was done last year.

Experiments in sandal regeneration are being conducted in the same division in consultation with the Research Officer. So far the results seem to indicate that sowing under light shade gives a better percentage of germination but that the percentage of survivals is greater under heavy shade than under light shade.

CHAPTER VII.—ADMINISTRATION.

58. Mr. T. Clear held charge of the circle throughout the year. The proposals for the bifurcation of the *Vellore* division which were submitted to Government, were still in abeyance at the close of the year in view of the question of the reorganization of the entire department now under consideration. For the same reason the question of lightening the work of the Central Salem division by regrouping and redistribution of some of the reserves among other divisions remained unsettled.

59. *Tours.*—The Conservator toured in all the divisions of the circle and spent one hundred and eighty-five days in camp.

The District Forest Officers, *Chittoor*, *Vellore*, *North and South Salem* did more than the prescribed minimum of touring during the year. In *Central Salem* the period fell short by three days. This was due to the fact that Mr. Woodhouse Adolphus was permitted to restrict his touring to half the prescribed period during the time he was engaged on the preparation of a new consolidated working plan.

60. *Inspections.*—The Conservator inspected all the District Forest offices in the circle. The forests of *Vellore* and *North Salem* were inspected and inspection notes written.

The District Forest Officers inspected all the Range offices in their divisions.

61. In the permit defalcation case referred to in the last year's administration report, the Range clerk, Odugathur, was convicted and sentenced to undergo rigorous imprisonment for three months. In the case of the other subordinates, as the Police reported that no case was made out they were reinstated, the period of suspension being treated as leave to which they were eligible.

62. *Sandalwood depots.*—The two sale depots at Vellore and Tiruppattur were inspected by the District Forest Officer and the result of inspection was satisfactory. The forest depots in *North*, *Central* and *South Salem* divisions were also inspected by the respective District Forest Officers.

63. *Audit.*—The accounts of the District Forest offices, *Chittoor*, *Vellore* and *South Salem* were audited by the Accountant-General's staff and the results were reported satisfactory. The inspections of *North* and *Central Salem* offices were taken up after the close of the year.

64. *Vernacular Training School.*—The school was held in *North Salem* at Denkanikota from 1st April 1928 to 30th September 1928 with M.R.Ry. P. Mathuramuthu Pillai as senior Instructor and Supernumerary Ranger P. K. Subanarayana Ayyar as junior Instructor. Thirty students were trained; fifteen came from Kollegal division of the Fifth Circle and the balance from the three Salem divisions of this Circle; seven passed in the first class and twenty-three in the second class. All were trained in lac cultivation. The conduct and discipline of the students were satisfactory. Three Forest Guards from *Chittoor* were deputed to the school held at North Cuddapah; one of them did not join for which disciplinary action was taken against him; one of the two students who joined the school died as a result of an accident.

65. *Health of establishment and sanitation.*—The health of the establishment was bad in Mamandur range in *Chittoor* division, the Javadis and the Thenmalais in *Vellore* division, in the Chitteris and Atur-Kalroyans in *Central Salem* division and in the Kollimalais and Pachamalais in *South Salem* division; elsewhere it was normal.

66. For the improvement of water facilities on the Javadis, the District Board, North Arcot, generously contributed Rs. 4,900. With this amount 22 wells were deepened or repaired and trial shafts were sunk. The Malaiyalis greatly appreciate this benefit conferred on them.

No special measures of sanitation were undertaken in other divisions.

67. *Casualties.*—In Chittoor, two clerks, one of whom was the Accountant, and a punkah puller of the District Forest office, and one Forest Guard died of malaria. In *Vellore*, one watcher died of malaria. In *North Salem* one Ranger (Mr. R. E. Lemos) died of chronic asthma. In *Central Salem*, the head clerk of the District Forest office died, one Forester died after an operation, and one range peon died of malaria.

CHAPTER VIII.—GENERAL.

1. Formation of and Management by Panchayats. (To include forest village system.)

68. *Formation and management of panchayats.*—In *Vellore* division, four reserves aggregating 23,524·71 acres, viz., Kavuthi, Kannamadai, Radapuram and Tippakadu reserves of Tiruvannamalai range which were transferred from 'Red' to 'Yellow' during the previous year were handed over to panchayats during the year. In the *Central Salem* division, a special enumeration of all sandal trees in the Nagaramalai reserve under panchayat management was made by Mr. N. S. Ghate, Assistant Conservator

of Forests, the total number of measurable trees being 9,214. This made a strong case for resuming the reserve under class I, and a revision of the classification was accordingly ordered in G.O. Mis. No. 73, dated 10th January 1929. The reserve was handed over to the Forest department after the close of the year.

69. *Forest village system (Class II panchayat).*—The administration of certain 'Red' reserves of Tiruvannamalai range by class II panchayats was given up under the Chief Conservator's orders. Proposals to introduce the system in *Central Salem* division were dropped as the reserves were found not suited for the purpose.

2. MEASURES FOR IMPROVING LOCAL SUPPLIES AND FACILITIES FOR OBTAINING FOREST PRODUCE, WATER-SUPPLY, FUEL, MANURE LEAVES, ETC.

70. (*a*) *Improvement of water-supply in State forests—Boring operations.*—

Nil.

71. (*ii*) *Improvement of water-supply in grazing grounds.*—In *Chittoor*, the villagers of Synagunta and Kottamitta were permitted to graze their cattle in Mordana reserve of Palmaner range and to water them in the Govinda Nathi Ar as there was water scarcity in the Synagunta reserve. Rupees 237 in *Chittoor*, Rs. 204 in *Vellore*, Rs. 50 in *North Salem* and Rs. 50 in *Central Salem* were spent on repairing or deepening water sources in grazing grounds. In *South Salem*, no necessity was felt for any special improvement of water sources. If this work can be extended it may be possible to return to the block system of grazing, which will be greatly to the benefit of the forests.

72. (*b*) *The supply of forest produce to meet the wants of the public.*—The wants of townspeople and factories were generally met by coupe contractors. In Tiruvannamalai town a co-operative labour union met the town supply from coupes leased out to the union.

73. (*c*) *Supply of manure leaves.*—The question of supply of green manure from reserves under departmental control is awaiting orders of Government on the proposals submitted for ultimate closure of the reserves, the agriculturists being educated in the matter of growing their own green manure crops from patta fields through demonstration by the Agricultural department. As the progress in this respect is very slow and as land-owners do not evince any interest in growing green manure crops in patta fields, the agitation for green manure from reserves is great in *South Salem* and *Central Salem* divisions. Working forests for leaf manure is opposed to all sylvicultural principles but something has to be done pending more complete education of agriculturists. Accordingly in *South Salem* manure leaf series were sold on the coupe

system to contractors who supplied the local demand on payment. The demand in *Central Salem* is at present met from unreserves and mitta forests, and Daincha is grown to some extent in private holdings, but illicit removal of green leaf manure is still practised on a large scale especially in manure reserved forest. In *Chittoor* nine manure leaf felling series, each series divided into three annual coupes. were opened under the provisions of the revised working plan and one coupe in each series is sold annually. It is hoped that this provision may soon be cancelled when the people become more enlightened. In *Vellore* the requirements were met to some extent from leased fuel coupes. It is reported that the supply is nothing like enough to meet the demand and that illicit removals from reserved forests are resorted to by the ryots especially in Odugathur and Polur ranges. In *North Salem* the villagers get their requirements from unreserves and their own patta holdings. The solution of this problem is a pressing matter in the interests of the forests.

74. (*d*) *Removal of thatch and fodder grass by the public.*—In *Vellore* division free removal of thatch grass was permitted as usual for all the reserves including fuel coupes closed to grazing.

3. Timber and Sandalwood Transit Rules.

75. (i) *Timber Transit Rules.*—These are in force only in *Chittoor* division where they are working satisfactorily.

(ii) *Sandalwood Transit Rules.*—The rules referred to in the last year's report remain in force. Proposals for revising the existing schedule of routes and checking stations with a view to effect better control over transport are under consideration.

4. Jungle Tribes.

76. The Malayalee Hill village system continued in force in the hill villages on the Javadis and the Kalroyans in the *Vellore* division and in the Chitteris in the *Central Salem* division. The introduction of the system in the Salem Kalroyans of the Attur range and in the Bodamalais in the *South Salem* division is under consideration. The extension of the scheme to the Pachamalais and Kollimalais also has been suggested and so far the cattle census in each Malayalee village has been recorded.

As usual refunds of grazing fees for satisfactory protection of sandalwood areas and maintenance of reserve boundary lines, and special rewards for successful fire protection of the reserves covered by the Hill Village Grazing Scheme, were distributed during the year in open darbars specially convened for the purpose by the District Forest Officers. Deserving men from jungle tribes

continue to be employed as watchers, forest guards and foresters. The elementary schools at Komettiyeri and Veerappanur on the Javadis continue to work well. The opening of an itinerary dispensary at Komettiyeri is under consideration. A school under co-operative management was opened on the Kollimalais and proposals were received after the close of the year from the Registrar of Co-operative Societies to extend the system to other parts and the forest department has been requested to partake in the supervision.

5. Mining and Quarrying.

77. *Mining.*—In *Vellore* division a licence to prospect for pyrites for a period of one year from 2nd March 1928 in respect of an extent of two square miles in Periamalai reserve of Polur taluk was granted to Mr. H. A. Golwynne, Madras. A similar licence for one year from 5th November 1928 in respect of an extent of 1,060 acres on the same reserve adjoining the extent originally granted was also granted to him. In *Central* Salem Mr. S. K. Ramachandar was granted a mining lease for magnesite in Kurumbapatti reserve for a term of thirty years.

78. *Quarrying—Chittoor.*—A stone quarry in Ambur drug reserved forest was leased out for Rs. 352. Permission was granted for quarrying elsewhere on payment of seigniorage rates. *Vellore.*—Local Fund contractors were as normal allowed free removal of road metal from reserved forests for public works. Banavaram quarry was leased. Avarampoliem quarry had already been leased for three years from 1928–29. *Central Salem.*—Rupees 96-2-0 was collected from the District Board for 38,446 cubic feet of metal quarried during the year. *South Salem.*—Ordinary building stones were sold on lease in quarries in the reserves and unreserves. Royalty was charged for other departmental works irrespective of the agency of collection both for reserves and unreserves.

6. Livestock.

79. *Elephants.*—Nil.

80. *Other animals.*—One bull was maintained by the department for watering the plants in the Whiteside's garden reserved forest and the forest rest-house compound at Palmaner.

7. Civil Suits.

81. *Chittoor.*—The result of the appeal preferred by the Zamindar of Bangarupoliem is not yet known. *Central Salem.*—A notice of suit was filed by Mr. K. V. Krishnaswami Ayyar on behalf of Arunagiri Chettiyar of Talapalaiyam, Bhavani taluk, claiming damages to the extent of Rs. 20,000 consequent on the District Forest Officer's refusal to register his

property mark on the ground that the party was suspected of illegal practices of substituting and introducing other sandal trees bearing counterfeit hammer mark. The property mark of Arunagiri Chettiyar was subsequently registered after which the suit was dropped. *South Salem.*—The bees'-wax case referred to in the last year's report was decreed against Government to pay to the plaintiff the value of the wax under suit, together with costs and interest. The bundles of wax—the suit property—which were kept in the double-lock room of the Salem Huzur Treasury were taken over after the close of the suit and despatched to the medical stores depot.

82. *Enclosures within the Arasadi Arivithi reserved forest, Musiri Pachamalai reserve, Tenbaranad village.*—The suit filed by Mr. Ramachandra Ayyar of Arumbavur referred to in the last year's report, claiming an extent of 26·75 acres within the reserved forest, alleging to have been purchased from the legal inheritant of Parathammal under the cover of a sale deed executed in the 8th September 1921 was pending in the Court of the District Judge, Trichinopoly, in O.S No. 4 of 1928. Another suit was filed within the same vicinity by Natti Periamuthu Machi Reddi of Arumbavur, Perambalur taluk, in O.S. No. 141 of 1928 of the District Judge, Trichinopoly, contending that paimash No. 1368 and three other numbers in Thenbaranad village are his private property within the reserved forest, by virtue of a sale deed dated 9th December 1917 and praying for possession and annual profits or in the alternative for a decree of Rs. 1,000 as the value of the suit property.

8. Control of unreserved lands by the Forest Department.

83. *Vellore.*—The Land Revenue Administration of the Javadi hill villages of Tiruppattur taluk has now been under the control of this department for the last eleven years and its continuance for another year up to 31st August 1929, was sanctioned in G.O. No. 276, Development, dated 14th February 1929, and communicated in Chief Conservator's Proceedings Mis. No. 133, dated 16th April 1929. Proposals have already been submitted to extend the Land Revenue Administration throughout the Javadis and the Yelagiris of this division. *South Salem.*—The unreserves of the Pachamalais and Kollimalais remained under the partial control of the Forest department in the matter of protecting the existing growth from destruction by 'ponakading.' The department continued to have control over the sandalwood and minor produce in the plateau unreserves.

84. Several of the old Ponakad areas on the Kollimalais and Pachamalais have been held under sivayi-jama and by a general

order, all such cases were held 'objectionable.' This led to agitation among the Malayalees. After due investigation, the Collector of Salem passed orders classifying such lands as 'objectionable' and 'unobjectionable'; on the basis of this order, the revenue subordinates can admit of petitions for Ponakad cultivations only in respect of the lands classed 'unobjectionable.'

A similar detailed report on the origin and condition of the Trichinopoly Pachamalais has been sent up to the Collector of Trichinopoly for a joint investigation with the Revenue and Forest Officers regarding lands on the Pachamalais available for Ponakad cultivation, on the same lines as dealt with by the Collector of Salem. The Collector of Trichinopoly is taking actions on the proposals submitted.

85. The relations between the Forest and Revenue departments continued to be friendly.

ENCLOSURE

AN ACCOUNT OF THE OPERATIONS AND RESULTS IN EACH FOREST DISTRICT OF THE FOURTH CIRCLE DURING 1928-29.

CHITTOOR DIVISION.

Description.—This division covers portions of the civil districts of Chittoor and North Arcot. It consists of Palmaner range, which is a continuation of the Mysore plateau, and Chandragiri, Chamala, Mamandur and Gudiyattam ranges which cover the western slopes and spurs of the Eastern Ghats. The elevation of the division varies from 500 to 3,794 feet above sea level. The forests are of the dry deciduous type for the most part, but in parts of the Mamandur and Chamala valleys, timber of valuable species occurs. Sandal is also found but of inconsiderable size.

Area.—The aggregate area of the reserved forests in the division is 786 square miles, of which 577 square miles are under the control of the Forest department and 209 square miles under the control of panchayats.

How the Forest division is split up into subordinate administrative charges—

Ranges.	Number of beats.
1. Chandragiri	8
2. Chamala	8
3 Mamandur	8
4. Palmaner	13
5. Gudiyattam	15
Total ...	52

Cost of administration—

	Rs.
District Forest Officer	9,919
Range officers	10,601
Subordinate staff	32,727
Clerical staff	8,793
Total ...	62,040

Cost under other important heads—

	Rs.
Exploitation	1,166
Improvement and upkeep of forests	18,602
Miscellaneous	17
Total ...	19,785

Income from main sources—

	Rs.
Sandalwood	1,598
Timber	11,174
Fuel	8,319
Bamboos	14,353
Grazing	24,643
Minor forest produce	21,624
Miscellaneous, including drift and waif wood ...	8,936
Total ...	90,647

The chief work done in the division—

Supply of fuel and control of grazing.

Establishment of sandal propagation centres with a view to the introduction of sandal in a systematic manner.

A limited amount of timber, red sanders and species of shorea, is marketed from Talakona and Chamala valleys of Chamala range.

The financial results of the year are analysed below :—

	Rs.
Total revenue	90,647
Total expenditure	84,520
Net profit ...	6,127

Vellore Division.

Description —The division comprises the whole of the Javadi hills of the Eastern Ghats with their outliers, roughly 50 miles long and 30 miles broad, with an elevation rising to about 3,200 feet. To the south, lie the Kalroyans forming, as it were, a barrier between the North and South Arcot districts and the fringe of these also is administered from Vellore. The

territorial jurisdiction of the division extends over the major portion of South Arcot and Chingleput districts in which, however, reserved forests have been handed over to Revenue Panchayat management. The hill forests are mostly deciduous, with stretches of evergreen belts at higher elevations. The forests are notable for sandal and bamboos, especially bamboos which are famous throughout Southern India with small timber and fuel species in the foot hills.

Area.—The aggregate area of the reserved forests in the division is 1,116 square miles, of which 706 square miles are under the control of the Forest department and 412 square miles under the control of the Revenue Department. An area of 37 square miles was transferred to the control of the Revenue Department during the year under review.

How the Forest division is split up into subordinate administrative charges.—

Ranges.	Beats.	Sandal-wood series.	Total.
1. Tirupattur	9	4	13
2. Alangayam	8	1	9
3. Chengam	4	3	7
4. Tiruvannamalai	7	...	7
5. Polur	7	3	10
6. Santhavasal	9	3	12
7. Odugathur	29	...	29
Total	73	14	87

Cost of administration—

	Rs.
District Forest Officer and his assistants	25,391
Range officers	21,481
Subordinate staff	44,632
Clerical staff	15,761
Total	1,07,265

Cost under other important heads—

	Rs.
Exploitation	10,030
Improvement and upkeep of forests	25,622
Miscellaneous	109
Total	35,761

Income from main sources—

	Rs.
Sandalwood	1,82,040
Timber	26,752
Fuel	42,718
Bamboos	97,404
Grazing	51,818
Minor forest produce	59,790
Miscellaneous, including drift and waifwood	37,220
Total	4,97,742

The Chief work done in the division.—Marketing of sandalwood, fuel, bamboos and minor forest produce. Land Revenue Administration is a feature in the Tirupattur-Javadis where the Forest department assumes to a limited extent the functions of the Revenue Department to the satisfaction of all concerned. A start has been made in the enumeration of patta sandalwood trees on the hills.

The financial results of the year are analyzed below :—

	Rs.
Total revenue	4,97,742
Total expenditure	1,50,075
Net profit ...	3,47,667

North Salem Division.

Description.—Part of the division covers a portion of the Mysore plateau which contains large areas of sandalwood forests. The lower areas towards Salem (the 'Talaghat') do not contain so much sandalwood, but such timber species as *Hardwickia binata*, *Terminalia Arjuna* and *Anogeissus latifolia*, etc., grow in profusion.

Area.—The aggregate area of the division is 578 square miles, of which 568 square miles are under the control of the Forest department and 10 square miles under the control of the Revenue Department.

How the Forest division is split up into subordinate administrative charges.—

Ranges.	Beats.	Sandal-wood series.	Total.
1. Denkanikota East	5	5	10
2. Denkanikota West	7	2	9
3. Anchetti	8	2	10
4. Dharmapuri	8	2	10
5. Krishnagiri	6	...	6
Total ...	34	11	45

Besides the above, there is a Ranger on spike investigation work and another on patta sandalwood duty.

Cost of Administration—

	Rs.
District Forest Officer	11,507
Range officers	17,182
Subordinate staff	29,681
Clerical staff	11,734
Total ...	70,104

Cost under other important heads—

	Rs.
Exploitation	17,764
Improvement and upkeep of forests	25,337 *
Miscellaneous	988
Total ...	44,089

Income from main sources—

	Rs.
Sandalwood	2,51,998
Timber	10,808
Fuel	3,766
Bamboos	3,825
Grazing	34,955
Minor forest produce	24,749
Miscellaneous, including drift and waifwood ...	8,602
Total ...	3,38,703

The chief work done in the division.—The extraction of sandalwood, the supply of small timber, bamboos and fuel to the local population are the chief works done in the division. Investigation under the supervision of the Indian Institute of Science, Bangalore, is being undertaken with a view to discover the cause of sandal 'spike' disease. Lac introduced by the Utilization Branch as an experimental measure is likely to afford an additional source of revenue.

The financial results of the year are analyzed below :—

	Rs.
Revenue	3,38,703
Total expenditure	1,18,401
Net profit ...	2,20,302

Central Salem Division.

Description.—The Forest division covers the Shevaroys in the centre and the Kalroyan hills in the north and north-east, part of the latter being known as the Chitteris. The Shevaroys attain an elevation of over 5,000 feet, while the Kalroyans average 2,000—3,000 feet. The Chitteris are a tangled mass of plateau and ravines with peaks rising to nearly 4,000 feet in height. The southern and western parts of the division consist of small hillocks and undulating ground where *Hardwickia binata* and fuel species are found. The higher elevation contains small timber, bamboos and sandal in fair quantities. About 2,000 acres of the Shevaroy hills have been leased to planters for coffee cultivation.

Area.—The aggregate area of the reserved forests of the division is 964·61 square miles, of which 732·61 square miles are under the control of the Forest department and 232 square miles under the control of the Revenue Department. An area of about 3½ square miles was disreserved during the year.

* Includes Rs. 9,241 incurred on spike investigation operations.

How the Forest division is split up into subordinate administrative charges—

	Ranges.	Beats.
1. Atur		20
2. Harur		19
3. Shevaroys South		10
4. Shevaroys North		7
5. Cauvery		10
		66

Cost of Administration—

	Rs.
District Forest Officer	10,417
Range officers	13,286
Subordinate staff	30,492
Clerical staff	11,076
Total ...	65,271

Cost under other important heads—

	Rs.
Exploitation	3,088
Improvement and upkeep of forests	17,134
Miscellaneous	82
Total ...	20,304

Income from main sources—

	Rs
Sandalwood	28;078
Timber	20,231
Fuel	29,046
Bamboos	20,035
Grazing	69,694
Minor forest produce	26,200
Miscellaneous, including drift and waifwood ...	28,564
Total ...	2,21,848

The chief work done in the division.—Timber trees in Harur and Shevaroys ranges were sold standing to contractors in order to test the market. For the rest the work is mainly control of grazing and supply of fuel to Salem town. A limited quantity of sandalwood is extracted.

The financial results of the year are analyzed below :—

	Rs.
Total revenue	2,21,848
Total expenditure	90,051
Net profit ...	3,11,797

South Salem Division.

Description.—The South Salem Forest division comprises the Bodamalais and the Kollimalais of the Salem district and the Pachamalais of the Salem and Trichinopoly districts, isolated hill ranges reaching in some places an elevation of 4,000 feet. The valleys and the higher slopes contain semi evergreen forests. The plateaux were originally mainly evergreen species, but most of them have been denuded by shifting cultivation, only small remnants of the original sholas being left. Sandalwood is common in the plateaux and along streams and slopes up to about 2,500 feet. The present stock is mostly immature. 'Spike' disease on the Pachamalais of Trichinopoly district has almost been arrested; it is now prevalent on the eastern side of the Kollimalai plateau. The lower slopes of all these ranges are fuel forests, greatly denuded by manure leaf cutting.

Area.—The aggregate area of the reserved forests in the division is 411 square miles, of which 255 square miles are under the control of the Forest department and 156 square miles under the control of the Revenue Department.

How the Forest division is split up into subordinate administrative charges—

Ranges.	Beats.
1 Rasipur	9
2. Namakkal	9
3. Thammampatti	12
4. Turaiyur	12
Total ...	42

Cost of Administration—

	Rs.
District Forest Officer	8,648
Range officers	12,217
Subordinate staff	21,196
Clerical staff	11,046
Total ...	53,107

Cost under other important heads—

	Rs.
Exploitation	1,858
Improvement and upkeep of forests	15,480
Miscellaneous	571
Total ...	17,909

Income from main sources—

	Rs.
Sandalwood	18,718
Timber	23,827
Fuel	8,665
Bamboos	5,410
Grazing	24,350
Minor forest produce	37,846
Miscellaneous, including drift and waifwood	21,755
Total ...	1,40,571

The chief work done in the division.—Control of grazing and supply of fuel and leaf manure.

Toon trees were extracted in the Namakkal Kollimalais for cart materials in order to test the market. The Ponakading in the plateau unreserves of the Pachamalais and Kollimalais of Salem district under the control of the Forest department was investigated by the Collector of Salem and classified into objectionable and unobjectionable.

The financial results of the year are analyzed below :—

	Rs.
Total revenue	1,40,571
Total expenditure	74,381
Net profit ...	66,190

SUMMARY OF PROGRESS DURING THE FIVE YEARS 1924-25 TO 1928-29.

The chief features of the quinquennium were—

1. The reconstitution of the Fourth Circle into five divisions from eight. During this rearrangement, Chittoor was attached to the Fourth Circle and Chingleput was abolished.

2. The transfer of headquarters of *North Salem* to Hosur cattle farm and that of *South Salem* division to Salem.

3. Reclassification of forest reserves and the consequent transfer of Ryots forests to the Land Revenue Department resulting in a change in the territorial jurisdiction of forest divisions as follows :—

(1) A reduction in the number of ranges from 34 to 26 due to the abolition or transfer of ranges to other circles.

(2) The transfer of Tanjore forests to the Fifth Circle.

(3) The merging of *East Salem* division excluding the portion handed over to Panchayat management into *Central Salem* division.

(4) The reconstitution of the three *Vellores* into one *Vellore* division.

4. The decision in favour of Government of the appeal against Section 4 Notification in respect of Arana and Thirthagiri reserved lands.

5. The investigation into the cause of 'spike' disease in sandal by the Indian Institute of Science, Bangalore, on a contract for three years from 1st October 1927.

2. Administration and Control.

The present *Central Salem* and the *Vellore* divisions as reconstituted being found too heavy, the question of regrouping and distributing the reserved forests among other divisions was considered. Proposals were sent up to Government for bifurcation of the *Vellore* division. These have been kept in abeyance pending decision on the larger question of reorganization of the Forest department.

The following officers were in charge of the Fourth Circle during the period under review :—

(1) Mr. H. A. Latham—1st April 1924 to 23rd November 1924.
(2) Mr. T. Clear—24th November 1924 to 24th May 1926.
(3) M.R.Ry. Rao Sahib K. R. Venkataramana Ayyar—25th May 1926 to 27th November 1927.
(4) Mr. T. Clear—28th November 1927 to 31st March 1929.

3. Organization.

The reorganization of the protective staff resulting in reduction in the number of foresters and forest guards was given effect and beats were reconstituted on the basis of one forest guard and one watcher for each beat.

4. Changes in area.

The area under the control of the department was increased from 2,754 square miles to 2,876 square miles as detailed below :—

	At the commencement of the period.	At the close of the period.
	SQ. MLS.	SQ. MLS.
Reserved forests	2,703	2,839
Reserved lands	51	37
Total ...	2,754	2,876

The net increase was chiefly due to the addition of *North Vellore* as reconstituted to include part of Chingleput, and of Chittoor to this circle and partly to the areas of reserved lands having been constituted as reserved forests in *East* (now included in *Central Salem*), *North* and *South Salem* divisions.

5. Forest Settlement.

Forty-six (46) square miles were settled during the period.

6. Demarcation.

The total length of artificially marked boundaries at the end of the quinquennium was 4,917 miles. During the period under review 166 miles of boundaries were permanently demarcated.

7. Forest Surveys.

During the period the Madras Survey surveyed the outer boundaries of reserved forests in Atur and Salem taluks including the survey of coffee

estates on the Shevaroys, and the survey of boundaries in Omalur, Rasipur and Namakkal taluks is in progress.

At the close of the period the survey of Bailnad reserved land was also taken up by the survey party.

8. Working Plans.

During the period under review consolidated working plans for the workable areas in *Chittoor* and *Vellore* (old *South* and *West Vellore* divisions) were completed for an aggregate area of 1,423 square miles. At the close of the quinquennium, the preparation of the consolidated working plan for the *Central Salem* division covering an area of 508 square miles was taken up and this has since been completed.

An area of 337 square miles is still to be brought under working plan.

9. Communications and Buildings (including other works).

The average annual expenditure during the quinquennium was Rs. 50,171 against Rs. 85,620 of the previous period. The decrease is due to the fact that large expenditure was incurred by the Forest Engineer on the Javadi roads in the previous period (Rs. 62,656).

10. Forest Offences.

The average annual number of offences reported during the period under review was 10,637 as compared with 8,550 of the previous quinquennium. The increase is due to the addition of *North Vellore* division as reconstituted to include part of *Chingleput* district, and of *Chittoor* to this circle.

11. Fire Protection.

The average area under special fire protection amounted to 1,171 square miles, the average failure being 2·64 per cent as compared with 1,090 square miles and 2·29 per cent respectively of the previous quinquennium.

12. Protection from Cattle.

The whole forest is closed to goats. The average area annually closed to all animals was 285 square miles and that open to grazing 3,288 square miles.

13. Yield and Outturn.

The following shows the average annual outturn for the two periods :—

	Timber and fuel in thousands of cubic feet.	Bamboos.	Minor produce.
		Rs.	Rs.
1919–20 to 1923–24 ...	1,694	1,46,885	1,03,846
1924–25 to 1928–29 ...	2,688	1,19,817	4,00,159

There has been an increase under timber by 58·67 per cent. due to the redistribution of divisions and increased assignment of darkhast lands and under minor forest produce by 285·34 per cent. The variation is apparently due to exclusion by mistake of the outturn under grass and grazing from the total outturn 'minor produce'.

The decrease under bamboos, which amounts to18·43 per cent, is due to gregarious flowering of bamboos and to unhealthy competition in the previous quinquennium and to collection of 1924–25 kist in 1923–24.

14. Financial Results.

The average annual financial results for the two periods are—

	Revenue.	Expenditure.	Surplus.
	Rs.	Rs.	Rs.
1919-20 to 1923-24 ...	10,35,462	5,72,484	4,62,978
1924-25 to 1928-29 ...	13,99,148	6,42,023	7,57,125

The increase in the net revenue was chiefly due to extraction of sandal-wood in a large scale on account of Spike in *North Salem* division, and to the addition of *Chittoor*, and *North Vellore* as reconstituted to include part of Chingleput division, to this Circle.

15. Forest Education.

The results during the quinquennium are shown in the statement below:—

Period of sessions.	Total number trained.	Award of certificates.		
		With Honours.	Higher standard.	Lower standard.
Period ending June 1925	1	1	..	..
Do. 1926	1	1	..	..
Do. 1927	..	..	..	..
Do. 1928	2	..	2	..
Do. 1929	2*	..	1	..

* One died.

The Vernacular Training School for training foresters and forest guards was opened annually as usual. The results are summarized below :—

Period.	Total trained.	Award of certificates.		
		First class.	Second class.	Third class.
February to July 1925	28	8	20	..
Do. 1926	30	14	16	..
Do. 1927	30	8	22	..
Do. 1928	30*	7	23	..
Do. 1929	..	..	..	..

* Includes fifteen students from Kollegal division of V Circle.

T. CLEAR,
Conservator of Forests, IV Circle.

Salem,
13*th September* 1929.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1929.

FIFTH CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS

1. ALTERATION IN AREA.

Reserved forests.—The total area of reserved forests at the beginning of the year was 3,338 square miles and at the end 3,321. The decrease was mainly due to the disafforestation of reserves in Cumbam range of Madura amounting to 10,817·50 acres as per details noted below :—

	ACS.	
Punnaimuthukaradu	87	Being a low-lying undulating ground with low thorny shrubs and without any tree growth was considered not worth while retaining as a reserved forest and disafforested.
Surilipatty Karadu	28·00	Disafforested and granted to Mr. Mead for plantation.
Kuttihachiar do.	1,266·50	
Vannathiparai do.	9,436·00	

An area of 0·78 acre of reserved forest consisting of the sites occupied by the buildings at Attakatti, taken over by the Ropeway Company, was disreserved with effect from 1st August 1928. There is a difference of 31·64 acres in Satyamangalam, Bhavani and Mettupalayam ranges of North Coimbatore. This is due to adoption of correct figures as notified. There is also a difference of 1·52 acres in Madura (Ayalur range) due to the recomputation of the reserved forest areas by the Director of Survey. The addition of 6·24 acres in South Coimbatore during the year is due to the adoption of the correct area disafforested from the Anamalai reserved forest under notification No. 329, dated 8th November 1924.

The survey of the Honnametti estate has been completed by the Officer in charge of No. III Party, Salem, but the survey has not been validated under the Act. The survey officer has intimated that the final notification will be published by the end of July 1929, provided no petition disputing the correctness of the survey is pending then. On receipt of further information from the survey officer, necessary notification will be submitted for the disreservation. Until then the estate will continue to be held on lease by Mr. R. C. Morris.

2. *Reserved lands.*—Nil.

3. *Forest settlement.*—Nil.

Demarcation.

4. The following are the new works undertaken during the year:—

	Rs.	A.	P.
Demarcation of enclosures in Kollegal for the first time 14 miles	777	9	0
Completion of the demarcation of the boundary between North Coimbatore and Palghat division, 5 miles	111	0	0
Clearing the boundary between the North Coimbatore and the Nilgiri division, 5 miles ...	301	0	0
Clearing the boundary between the North Coimbatore and Kollegal divisions, 1 mile	70	0	0

The reclearing of the existing boundaries was as usual done by the subordinates free of cost in all divisions except South Coimbatore.

South Coimbatore.—A sum of Rs. 42–8–0 was spent for clearing the eastern boundary of the Punachi Working Circle, and erecting small cairns of rough stone, with stacks in the centre over a distance of 11½ furlongs. In Pollachi range a sum of Rs. 14–8–0 was spent in re-erecting 58 fallen boundary pillars on the outer boundaries of Tunacadavu and Anamalai reserves.

Madura.—Ten miles and four furlongs of Karumalai reserve, Natham range, was permanently demarcated with stone pillars and cairns at a cost of Rs. 1,099.

A sum of Rs. 50 was spent in *Tinnevelly* on clearing the common boundary between the Kattalamalai estate and reserved forest in Kannikatty range.

FOREST SURVEYS.

(*a*) *By the Survey of India Party.*

5. Nil.

(*b*) *Local Surveys.*

6. The survey of coupes and regeneration areas was as usual done by the subordinates.

7. Reference maps were maintained in all districts and posted to end of March 1929.

CHAPTER II.—MANAGEMENT OF FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of working plans.

(*a*) Preparation.

8. No new working plans were sanctioned during the year.

The working scheme for the Kollegal division completed by the District Forest Officer was tentatively approved.

The preparation of a new working plan in North Coimbatore division is underway by the working plans staff.

A revised working plan for the Mount Stuart forests is under preparation by Mr. M. V. Laurie under the Working Plans Conservator.

A scheme for opening a fuel series consisting of 30 coupes in the Nallar valley of the Anamalai reserve in the Udamalpet and Pollachi ranges of South Coimbatore division was prepared by the District Forest Officer and was sanctioned tentatively for a period of three years.

The prescriptions of the tentative working plan of 1923 in the Tinnevelly division were carried out. Steps are being taken to revise the working plan as early as possible.

(*b*) Control.

9. The prescription of the existing working plans and schemes were generally followed except in the following cases:—

North Coimbatore.—Felling in eight working circles were behind hand, due to lack of demand. For the same reason coupe 21 of Senkaradu was not sold during the year. Improvement fellings in Kallar and Jaccaneri working circles were not undertaken, as the operations were found unnecessary.

South Coimbatore.—Slight deviations from the working plan for Mount Stuart Working circle were reported to the Chief Conservator and his approval obtained. Coupe XLI of the above was worked during the year, and the area regenerated was 150 acres. All fuel and bamboo coupes were sold standing, except one fuel coupe for want of good offer, and this was worked departmentally.

Madura.—Felling was not carried out in three felling series, wherein re-arrangement of series for working was under correspondence, and one Karandamalai timber felling series in Ayalur range was closed.

Tinnevelly.—Two strips of Puliyangudi coupe XXI and one strip of Karuppaswamikoil coupe VI and Vasudevanallur coupe V were worked departmentally. The remaining strips in the above were sold.

The three coupes in Srivilliputhur range, not sold in 1928, were sold during this year.

2. Communications and Bridges.

(*a*) *Roads and Bridges.*

10. The expenditure on new works amounted to Rs. 6,452 and on repairs Rs. 51,325 against Rs. 5,146 and Rs. 71,022 in the previous year. The chief works were:—

Kollegal.—Construction of bridle path, 1 mile 6 furlongs.

North Coimbatore.—The cost of land acquired for the Dayanur-Tholampalayam road constructed last year was paid.

South Coimbatore.—Construction of a fair weather road in Tunacadavu range, 7 furlongs.

Madura.—Extension of Sirumalai-Anjukulipatti road, 4 miles 2 furlongs.

Tinnevelly.—A cart-track 5 furlongs 17 yards, a new road 4 furlongs, and one bridle-path 2¾ furlongs. A bridle-path was traced to a distance of 8 miles 2 furlongs and another was widened to 11 feet for a distance of ten furlongs.

11. Five hundred and twenty-five miles and two furlongs of roads and bridle-paths were maintained during the year. The road from Cowdalli to Chengadi, 13 miles long, was thoroughly repaired and made fit for motor traffic. One hundred and ten miles of road was maintained in Madura from combined funds of the local fund and this department. A sum of Rs. 4,846-4-0 was contributed by the several district boards for repairs to roads, and this sum was credited to revenue. A sum of Rs. 1,099-11-0 paid by the

District Board, Coimbatore, for repairs to Tamarakarai-Girgagandi road and Ajjipuram-Girgagandi road, and Rs. 2,000 for the Amaramapalayam-Sethumadai road were received after the close of the year.

Contribution from the Tinnevelly Taluk Board for repairs to five falls road is yet due.

(*b*) *Buildings.*

12. Expenditure on new works was Rs. 11,313, and the important works carried out were:—

Kollegal.—Construction of subordinates' lines at Gopinatham..

Construction of subordinates' lines at Ullurthanda.

Construction of a Range clerk's quarters at Thattakarai (incomplete work).

North Coimbatore.—Subordinate lines at Thekkampatti.

South Coimbatore.—The construction of the waterfall buildings was completed. A new raingauge was set up at Gundrow.

Madura.—Improvements to the subordinate lines at Vembadi.

Improvements to the depot clerk's quarters at Gundan shola.

Conversion of subordinate lines at Green hut into an inspection shed.

Construction of a compound wall round Surlipatti depot.

Tinnevelly.—Construction of Forester's quarters at Pudupatti, and the construction of a portion of the compound wall of Range Officer's quarters and office at Kadayanallur.

13. Rupees 12,623 was spent on repairs to buildings during the year.

(*c*) *Miscellaneous.*

14. *Kollegal.*—The well attached to the Range Officer's quarters at Cowdalli, and that in the rest-house compound were deepened at a cost of Rs. 13 and Rs. 54–10–0 respectively.

North Coimbatore.—The wells in the Range Officer's quarters at Satyamangalam, at Kadambur and in the Range Office compound at Andiyur were deepened at a cost of Rs. 157.

Tinnevelly.—A new well at Ambasamudram for the use of the Kannikatty Range quarters was constructed at a cost of Rs. 288.

The expenditure on repairs, viz., Rs. 916 was chiefly in silt clearing and deepening wells.

3. Protection of Forests.

(a) *General protection.*

15. The following statement compares the total number of forest offences during the year under report with those of the previous year :—

Reserves and unreserves.

Cases.	Fires.		Felling.		Grazing.		Other offences.		Total.	
	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.
A. Taken into Court ..	14	7	1,930	1,404	286	226	55	53	2,285	1,690
B. Compounded ..	8	38	2,294	2,233	520	448	174	190	2,996	2,909
C. Undetected ..	180	179	33	17	3	1	1	2	217	199
Total ..	202	224	4,257	3,654	809	675	230	245	5,498	4,798

The figures show slight increase under fires and other offences and decrease under felling and grazing.

The increase under the two heads is very slight, and the decrease is reported to be due to the villagers getting their requirements from agricultural implement coupes, and the handing over of ryots forest to panchayats.

16. *Cases old and new dealt with during the year.*—Of the 2,615 cases taken into court including the old ones, 1,089 ended in conviction, 971 in acquittal leaving a balance of 555 cases pending with the magistrates. Of the 971 cases acquitted, 772 related to cases in which compounding fees were paid in court. One hundred and seventeen cases had to be withdrawn in Madura, as the subordinates who charged the cases were either not in the service, or the accused could not be identified. Rupees 41,750-11-0 was realized as compounding fees against Rs. 34,177 in the previous year. Punishments awarded by magistrates were generally adequate in all districts.

17. In all the districts the range officers enquired into a small percentage of the offences, and the following District Forest Officers held enquiries themselves as noted below :—

	Cases.
Kollegal	3
North Coimbatore	3
Madura	2
Tinnevelly	1

18. *Rewards.*—Rupees 50 was disbursed as rewards to subordinates : Kollegal Rs. 10 ; North Coimbatore Rs. 25 ; and Madura Rs. 15.

19. *Patrol.*—The special patrol system was not in force in any of the districts. The usual notice warning the public against setting fire to the reserved forests was published in the District Gazettes. Five thousand and eight hundred acres in Tinnevelly where fire had occurred were closed to grazing until further orders. Grazing fees were not enhanced.

(*b*) *Protection from fire* (*calendar year* 1928).

20. *Special protection.*—The area attempted to be specially protected during the year was 225,952 acres against 372,180 acres in the previous year, and the cost of protection was Rs. 3,458 against Rs. 4,585 in the previous year. The total area burnt was 1,509 acres against 3,610 in the previous year, the percentage of successful protection being 99·33 against 99·03 in the previous year.

21. *Kollegal.*—No areas were specially protected during the year. Early burning was done in the sandal areas, the grass between the outer edges of the sandal blocks was early burnt at a cost of Rs. 556-6-0. The result of the operation is reported to be satisfactory, as no fires occurred in the sandal areas. The Kollegal-Mysore frontier boundary was cleared to a width of 30 feet on the Kollegal side over a length of 22 miles, and the forests adjoining it were burnt early, at a cost of Rs. 220.

North Coimbatore.—Early burning was done in 5 square miles of Minchigully valley at a cost of Rs. 45. Patches in the Hassanur hills were burnt at a cost of Rs. 19. Hassanur-Bailur road sides were burnt for a distance of 15 miles at a cost of Rs. 44.

South Coimbatore.—Besides the early burning of grass around sholas on the grass hills, the regeneration areas, and timber depots, and also the Punachi timber working circle were fire protected at a cost of Rs. 236-4-0. There were no fires in Punachi range during the year.

Madura—Pine plantations.—The fire protection of the plantations was carried out as in previous years, and was generally satisfactory. Fire tracing of 50-foot lines was done in portions of frontier line to a length of 6 miles.

Ampthill downs.—Fire protection was done on the same lines as last year for the protection of the sholas. There was only one fire during the year over an area of 10 acres.

Tinnevelly.—The system of early burning was discontinued this year in all ranges, a system of protection by fire patrols is under investigation.

22. *General protection.*—The area under this heading was 1,809,234 acres against 1,682,090 acres in the previous year, and the area burnt was 54,649 acres against 45,486 acres in the previous year. The number and origin of fires are compared in Appendix A.

A sum of Rs. 9 was spent in South Coimbatore for putting out fires.

23. The average cost per square mile of special protection and general protection was Rs. 9–14–0 and Re. 0–11–0, respectively, per square mile attempted.

(c) Protection against cattle.

24. Two thousand four hundred and seventeen square miles were open to grazing of all animals except goats against 2,408 square miles in the previous year. Three square miles in Coimbatore North, and two in Tinnevelly were kept open for part of the year. One hundred and ninety-nine square miles were open to grazing of all animals except browsers, sheep and goats, throughout the year, and nine for part of the year.

The Minchigully valley (2·82 square miles) in the Satyamangalam range of North Coimbatore was thrown open to the grazing of cattle of Kottadai and Osatti from the 15th August to 30th September 1928 on account of the prevalence of severe rinderpest in Hassanur and Ekkathur plateau.

25. The grazing incidence was :

	Acres per cow unit.	
	1928–29	1927–28.
Kollegal	6·1	6·6
Coimbatore, North	6·56	6·2
Do. South	10·07	9·5
Madura	8·0	8·0
Tinnevelly	2·52	5·4

Grazing permits were issued in South Coimbatore for three elephants at Rs. 10 each. The number of cattle impounded was 10,854 against 13,289 in the previous year and 14,956 the average of three years ending with 1927–28.

(d) Protection against injuries due to natural causes.

26. Due to prolonged hot weather the regeneration in South Coimbatore was poor. Teak plantations continued to be attacked by defoliators, though less severely than usual.

27. *Weeds and climbers.*—In *Kollegal*, creeper cutting on sandal trees in the sandalwood working circles, was done over an area of 8,938 acres at a cost of Rs. 337–12–0.

North Coimbatore.—Creepers on trees in the Mettupalayam range were cut by subordinates during patrol.

South Coimbatore.—Weeding was done in fuel coupes already worked over at a cost of Rs. 377-15-0. Weeding and climber cutting were also done around young teak plants in the Punachi working circle.

Madura.—Creeper cutting in seven fuel coupes over an area of 459 acres was done at a cost of Rs. 550.

Tinnevelly.—Weeding and climber cutting were done by the beat subordinates free of cost generally. Rupees 537 was spent on climber cutting in three ranges.

28. *Prickly-pear, Lantana and Strobilanthus.*—Strobilanthus is uprooted by contractors in working their fuel coupes in Tinnevelly, being one of the conditions of the coupe agreements.

29. *Damage by animals—Kollegal.*—Elephants continue to roam in the forest and do considerable damage to the forest growth. Four solitary tuskers were proscribed and shot. Sambur and deer caused damage to young sandal seedlings.

North Coimbatore.—Elephants continue to damage the Manar sandal area in Mettupalayam range.

South Coimbatore.—Tender leaves of rosewood and vengai were browsed by sambur and deer, and the teak plantations were defoliated though not so severely as last year. Wild elephants continued to cause damage to teak plants and partially wrecked the 1926 Regeneration Area.

Tinnevelly.—Sambur caused damage to a few teak coppice shoots. Elephants migrate to the Alagarcoil valley and cause damage to the sandal, teak and usil trees in Srivilliputtur range.

Madura.—The damage by elephants continued.

30. *Damages by rain and floods.*—Nil.

CHAPTER III.—SILVICULTURE.

Section 1.—Formation and Regeneration.

(i) *General progress of areas under regeneration.*

31. *Kollegal.*—Operations to spread sandal, in portions of Doddasampagai, Madeswaramalai and Chikkailur reserves are being conducted.

Coppice growth in the fuel and agricultural implement coupes, is slow.

North Coimbatore.—Spike still occurs at Hassanur, Kottadai, Gairmalam and Yekkatur of Satyamangalam Range and to a limited extent near Talamalai in Talamalai range; but Gundri and Makkampalayam are reported to be free.

Sandalwood reproduction was good and was free from spike in Palamalai and South Bargur reserves of Bhavani range but it is reported that several trees in South Bargur reserve, were found to have been attacked during the last few months. There is good natural regeneration of sandal, in small bushes in the hill plateau of Satyamangalam range. Natural reproduction of sandal in Mettupalayam range is very satisfactory. Reproduction of teak and vengai in South Bargur hills from seed is fair, and that of vengai, vellanagai porasu, unjai and veppam in Talamalai is satisfactory, but although the regeneration of selavagai, rosewood and vengai is good in Karaipalayam forests, most of the seedlings die on account of fire.

South Coimbatore.—Natural regeneration of the more important deciduous species in Tunacadavu range was poor, due to the very bad south-west monsoon, and the north-east monsoon being equally bad, many of the surviving young plants died out, during the hot weather. In Punachi range, the regeneration of valuable species was not satisfactory, due to scanty rains and unusually hot weather.

Natural reproduction from seed in Pollachi range is reported to be fair in the interior portions. Remarkable growth of *nim* is reported in the north-east corner of Kottur fuel coupe, and coppice reproduction is reported to be satisfactory in Ayerangal and Kottur fuel coupes, but to be rather poor in Gudaravalli and Pothamadai coupes, due to suppression by weeds and bushes. Natural reproduction in Udamalpet range is reported to be unsatisfactory, owing to unfavourable season, and spread of lantana and other obnoxious growth. The growth of coppice shoots in the worked over coupes is fairly satisfactory.

Madura.—Natural regeneration of delbergia latifolia, albizzia lebbeck and odoratissima, is fair, in the Vannathiparai Sethuvaikal valley of Cumbum range, but they do not make much headway due to the thick canopy overhead.

Vengai and shorea talura natural seedlings are to be found on slopes and plateaux.

Regeneration of teak, vengai and rosewood is fair in Sirurmaiai-Anjukulipatti south and Waguthumalai in Sholavandan Range. Sandal regeneration in Cumbam range is restricted to the northern half of Kombai block and natural germination by root suckers and seed is good.

In the felled fuel coupes, the growth from coppice is satisfactory.

Tinnevelly.—Sandal is spreading in some quantity in Srivilliputtur and Kuttalam ranges. Artificially introduced sandal plots (1923) in Kannikatty and Kodamadi have not yet started to reproduce—but a number of these plants have survived.

(ii) *Establishment of reproduction under working plan or scheme.*

(*a*) Mainly natural.

32. *North Coimbatore.*—Coppice reproduction in the felled fuel coupes in all ranges is good.

Madura.—Under the Vannathiparai scheme natural regeneration of *rosewood* is good and that of *adina* fair.

Tinnevelly.—Reproduction from coppice in the felled coupes is good except where Stobilanthus is abundant. Reproduction from seed bearers in fuel coupes is poor.

Albizzia amara is abundant in Srivilliputtur range. Dalbargia Tamarindifolia reproduces itself well in the clear-felled coupes of Vallanad reserve.

(*b*) Mainly artificial.

33. *South Coimbatore—Tunacadavu range.*—An area of 150 acres was selected for regeneration during 1929. This was clear-felled, burnt and partly dibbled with teak at a cost of Rs 3,973-9-0. A further sum of Rs. 161 was spent after the close of the year in completing the dibbling. The whole work was carried out in good time, taking special care in the selection of seeds for dibbling, and in not dibbling seeds too deep.

In the regeneration area of 1928 the operation of raising teak and rosewood in conjunction with hill paddy undertaken last year, was a failure, due to the very bad monsoon. There was no continuous rain soon after germination to enable the seedlings to establish themselves, and the little rain we had was badly distributed being generally followed by a period of drought so that replacements invariably died.

Punachi range.—An area of 25 acres in periodic block I was cleared of all thickets of Lantana, and evergreen shrubs were burnt at a cost of Rs. 89. Clearing and burning Lantana thickets in the periodic block I of 1926–27 was also done at a cost of Rs. 13. Due to continued hot weather, the casualties in the 1926-27 plots were many, and only very few seedlings survived at the close of the year. In the 1928 plot also, only very few seedlings were found here and there, and they were kept clear of weeds.

The proposal to burn Lantana thickets in about 130 acres of compartments IV and VI could not be carried out for want of sufficient dead material, and on account of the greenness of the Lantana as a result of rains in March and April.

Madura.—Artificial regeneration was carried out in the Vannathiparai forests of Cumbum valley, under different treatments, and these have been dealt with in detail in Chapter VI.

Tinnevelly.—The following seeds were sown by the subordinates free of cost in Srivilliputhur range and results are noted below :—

Name of reserve.	Teak.	Tamarind.	Result.
Ayyanarkoil reserve	12 measures.	3 measures.	41 Teak and 6 Tamarind seedlings exist.
Coupe XXV Pudupatti	3 ,,	1 of Nellikottai.	2 Nellikottai seedlings exist.
Coupe XXXI of Valaikulam ..	20 ,,	..	Nil.
Coupe XIII of Rangarkovil ..	8 ,,	..	Nil.
Coupe XXV Ayyanarkovil Athithondu.	25 ,,	..	Nil.

(*c*) Afforestation.

34. *South Coimbatore.*—During the year no rosewood trees were root-wounded either in the periodic plot or in compartment II of Punachi range.

Tinnevelly.—A scheme of two years planting for the Kudiraimoliteri reserve with experimental sowing of Acacia Planifrons and Dalbergia Tamarindifolia with the object of fixing the shifting sands was sanctioned in Chief Conservator's Proceedings Mis. No. 258, dated 25th July 1928. The 5-acre plots and Semmarikulam compartment No. 7, and Kachinavilai compartment No. 2, were sown with Dalbergia Tamarindifolia and Acacia Planifrons in October 1928.

The latter was found to be more promising than the former. The blank areas of compartment Nos. 2, 3 and 5 of an area of 289 acres in Nazareth series, were sown with 125,715 palmyra nuts at a cost of Rs. 387-14-0, and the result of inspection in March 1929, showed that 80 per cent had germinated.

(iii) *Plantations and other forms of regeneration not under working plan or scheme.*

35. *Madura.*—The plantations already formed were maintained during the year.

Tinnevelly.—The evergeen regeneration areas near Kannikatty and Kodamadi are doing well.

Areas brought under regeneration during this year are—

(1) a small teak plantation of 3½ acres at a cost of Rs. 93 in continuation of the Kariar plantations ;

(2) another teak plantation of 9½ acres at Mundanthorai at a cost of Rs. 182 ; and

(3) Dibbling of teak seeds in an open area of 12 acres in coupe No. XXVIII Padarmalai series at a cost of Rs. 41-15-0.

36. *Other forms of regeneration not under working plan or scheme.* —*Kollegal.*—The dibbling of sandal at an elevation of 2,500 feet to 4,000 feet on stream banks containing perennial pools and under good tree growth in small patches 10′× 10′ was carried out. The result was not very satisfactory.

North Coimbatore.—Sandal seeds were dibbled under bushes in all the beats of Talamalai range, and 433 seedlings are reported to have come up in five beats; six nurseries were opened along the Bejjalethipallam, and seeds were sown in October, but there has been no germination so far.

Small patches of nursury were opened in all the hill beats of Satyamangalam range by beat subordinates without cost, and the results are encouraging in Hassanur, Geddesal, Yekkathur, Dimbum, Kakarai and Gundri.

Madura.—Sandal seeds were sown departmentally in some of the reserves during the year, and the survivals reported in each range is noted below :—

Kodaikànal range	203
Cumbum range	615
Sholavandan range	61
Ayalur range	31
Natham range	12
	922

Tinnevelly.—Sandal seeds were sown on 0·90 acre in Valliyur reserve, but germination was poor. Only 55 seedlings are reported to have survived at the close of the year. Dibbling of Dalbergia Tamarindifolia and Acacia Planifrons was done in Srivaikuntam range.

(iv) *Tending.*

North Coimbatore.—Tending of sandal trees in Jaccanari, and Constantia reserves was done in an area of 59½ acres at a cost of

Rs. 160-4-0. Creeper cutting and tending of young sandal growth was done in South Bargur reserve in an area of 310 acres at a cost of Rs. 199-14-0.

South Coimbatore.—The prescribed weedings in the regeneration areas of Tunacadavu range were carried out as usual. Tending operations in Punachi range were confined to compartment XX and a sum of Rs. 68-8-0 was spent. Creeper cutting was done in compartments II and V at a cost of Rs. 69-8-0. Weeding, climber cutting and cutting back damaged teak plants were done at a cost of Rs. 10 in compartments 14 (*b*), (*c*) and (*d*).

Madura.—Tending of sandal trees was done at a cost of Rs. 48 in Kodaikanal and Cumbum ranges.

(v) *General.*

37. *Kollegal.*—Steps are being taken to introduce Santalum Album, throughout the reserves, wherever conditions are favourable.

Teak seeds dibbled did not germinate for want of rain.

Chloroxylon Swietenia and Hardwickia binata, are reported to continue to coppice well, but the rate of growth is slow.

North Coimbatore.—Enumeration of sandal trees in Bhavani range was taken up.

Madura.—Creeper cutting on standards and other useful trees, was carried out by subordinates free of cost.

Section 2—Tending of the growing stock.—Climber cutting for the benefit of sandal trees over an area of 8,938 acres at a cost of Rs. 337-12-0 was done in Kollegal. Trees interfering with the growth of sandalwood were lopped by subordinates. In North Coimbatore sandal trees along the Abrahalla in Satyamangalam range were tended at a cost of Rs. 69-4-0 for a distance of ten miles six furlongs to a width of two chains. All the dead bamboos were also removed from the area.

In *Madura*, creeper cutting was done in Ayalur, Nattam, and Sholavandan ranges at a cost of Rs. 550 in six coupes.

The result of the operation is reported to be unsuccessful as more vigorous shoots grow up again.

In *Tinnevelly*, a portion of the 1924 Kariar teak plantations of Kannikatty range, submerged during the floods and damaged thereby, was cut back, after burning the area, of about $8\frac{1}{2}$ acres. The cost incurred was Rs. 22-8-0.

CHAPTER IV.—EXPLOITATION.

System of Management.

(*a*) *Major produce.*

38. The area under working plans including the temporary schemes was 1,454 square miles and the various sylvicultural systems in force are noted below :—

	Area in square miles.	Percentage to the total area under working plan.
Selection method	325	22
Simple coppice	702	48
Coppice with standards	136	10
Unworked or other felling	291	20
	1,454	100

In *Tinnevelly*, dead sandalwood and that damaged by elephants was collected as in previous years and sent to Tirupattur for sale. The quantity sent was 65 qrs.

In *North Coimbatore*, extraction of sandalwood was confined to dead trees. Fuel coupes were worked under the simple coppice system, but tamarind and sandal were not cut.

Sylvicultural restrictions were removed in the case of bamboos which have flowered, and are dead or dying. The forests in Kodaikanal, Sholavandan, Ayyalur and Natham ranges were worked under the simple coppice system as usual.

(*b*) *Minor forest produce.*

39. *Kollegal.*—Bamboo coupes were leased as usual to contractors, except in Kollegal range where for want of contractors, two bamboo coupes of the year were worked under the controlled permit system. Removal of dead bamboos on permits were also allowed. All minor produce including honey and wax was sold in public auction. There was no bid for the right to collect stone and tree moss in Bargur range in two successive auctions.

North Coimbatore.—All bamboo coupes were leased to contractors, with the exception of an area in the Nilgiri eastern slopes reserve for which permits were issued departmentally. As the Periyakulam bamboo coupes did not fetch a proper price at the auction, permits were issued departmentally. Minor forest produce was leased as usual. There was no demand for Vembadam bark, and stone and tree moss. Elephant tusks were sent to the Deputy Forest Utilization Officer.

South Coimbatore.—Bamboos were leased as usual in all ranges except Punachi. The minor forest produce used to be leased to the Anamalai Planters Association for a fixed sum of Rs. 280, and this has been in vogue for many years. During this year the area which was usually leased out to the planters was reduced, the fixed annual lease amount remaining the same. The remaining area was leased out for a sum of Rs. 300 for a period of four months and nine days from 22nd February 1929 to 30th June 1929.

Madura.—Bamboo coupes, the right to collect minor produce, avaram, myrabolam and kaya leaves were sold. Nux vomica was sold separately.

Tinnevelly.—Minor forest produce was leased out as usual.

40. *Grazing.*—This was as usual controlled by permits. Block system was abolished except in a range in North Coimbatore. Fodder grass was removed on permits in the three divisions of Coimbatore.

Agency of Exploitation.

(i) *By Departmental Agency.*

41. *Major produce.*—Timber and sandalwood continued to be extracted departmentally. In South Coimbatore timber from the forests of the Mount Stuart Working Circle was extracted departmentally and sent to Pollachi depot for sale. Some of the timber which could not be profitably sold in the round at the depot was sawn into sizes according to demand at the saw mill at Topslip and then sent to Pollachi depot. Selected timber from Punachi Working Circle which was felled departmentally was sent to Pollachi. The balance was dragged to the Aliar roadside depots and some of it was sold there to contractors and estate managers. The conversion of spokes and felloes from the top ends of trees, was undertaken; those pertaining to Tunacadavu range were all sent to Pollachi, while those of Punachi were partly sent to Pollachi, and the balance sold at the roadside depot itself. Brake poles supplied to cartmen were felled departmentally. In Tinnevelly two strips in Puliyangudi coupe XXI and one strip in Karuppasamikoil and Vasudevanallur coupes VI and V, respectively, were worked departmentally.

42. *Minor produce.*—In *North Coimbatore* the collection was limited to bamboos and thatch grass required for departmental work.

In *South Coimbatore* ivory is the chief item, and the tusks collected are sent to the Forest Utilization Officer for sale.

(ii) *By Purchasers.*

43. Fuel coupes in all the districts except Kollegal and three coupes in Tinnevelly were sold standing. In Kollegal due to paucity of contractors, fuel coupes could not be sold standing, and they were worked, along with the agricultural implement coupes under the regulated permit system.

In *North Coimbatore* a small area in the Ennamangalàm reserve was worked under the regulated permit system for supply of twigs to Shanars for manufacture of jaggery.

One coupe in the Udamalpet range of South Coimbatore could not be sold for want of proper bids at the sale and this was felled departmentally and the right to remove the brushwood in the coupe was sold to a contractor for a sum of Rs. 327-8-0.

44. *Minor forest produce.*—Bamboo coupes in all the districts except in Kollegal range and two coupes and another small area in the Nilgiri eastern slopes of North Coimbatore and the collection of minor forest produce except elephant tusks were in the hands of contractors. The coupe in the Kollegal range, and the two coupes and the small area in the Nilgiri eastern slopes were worked under the regulated permit system.

45. *By right and privilege holders.*—The quantity and estimated value of the different kinds of produce removed by right and privilege holders and free grantees is shown in the following statement:—

—	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos in value.	Grazing value.	Other minor produce in value.	Total.
		Rs.			Rs.	Rs.	Rs.	Rs.
Right and privilege holders .	..	..	..	..	..	1,257	612	1,869
Free grantees ..	11·5 and 590 palmyras.	2,892	..	..	8	..	15	2,915

Cattle up to 30 in number belonging to a temple in block II of South Coimbatore were allowed to graze free. The Pulayars of Thalinji in South Coimbatore were allowed to cultivate 33 acres according to rights acceded at settlement. The right to graze free in the Ampthil downs reserve in Kodaikanal range was continued and the number of cattle admitted was 4,587.

46. *By free grantees.*—The free grants in North Coimbatore, South Coimbatore and Tinnevelly were chiefly for rebuilding houses destroyed by fire.

47. *Outturn and sources of forest produce.*—The attached statement shows the total outturn of major and minor produce from all classes of forests by all agencies during the year as compared with that of the previous year.

Agency of exploitation.	Timber and sandalwood in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos in value.		Minor produce including grazing in value.	
	1927-28.	1928-29.	1927-28.	1928-29.	1927-28	1928-29.	1927-28	1928-29.
					Rs.	Rs.	Rs.	Rs.
By Government agency	154	208	116	409	7	4	1,342	612
By purchasers ..	468	422	3,491	2,879	42,498	39,795	2,54,268	2,67,164
By right and privilege holders .	..	..	..	..	..	..	3,577	1,854
By free grantees ..	12	17	..	..	108	8	22	423
Total ..	634	648	3,607	3,288	42,613	39,807	2,59,199	2,70,053

48. *By Government Agency—Timber.*—The increase is largely in South Coimbatore, and is due to the felling of a large quantity of timber in coupe 41 and part of coupe 50 of the Mount Stuart Working Circle and also in regeneration area of 1929 for the purpose of feeding the saw mill at Topslip, besides sending selected logs to Pollachi depot. In Kollegal larger quantity of sandalwood was extracted and sent to Satyamangalam. In Tinnevelly the outturn from the Kannikatti experimental plot accounted also for the increase.

Fuel.—The increase is due to the following causes:—

Kollegal.—Due to the sum realized from rejected top ends and branches in agricultural implement coupes and also due to the greater demand on account of favourable season for silk industry.

North Coimbatore.—Due to larger outturn from indicator areas.

South Coimbatore.—Due to felling of Kamanuthu fuel coupe No. IX departmentally for want of proper bid in auction and also to the sale of fuel stacks obtained from the indicator plots of Udamalpet range and from the fellings on the sides of Sethumadai-Adivaram Road.

Tinnevelly.—Due to the departmental working of strips 1 and 2 in Puliangudi and strip 1 in Karuppasamikoil and Vasudevanallur felling series.

Minor produce.—The decrease under this head was due to a smaller quantity of ivory collected and sold.

49. *By purchasers—Timber and fuel.*—The decrease is chiefly due to receipt from unreserved lands, which is an uncertain source

of revenue depending on the area containing tree growth granted on darkhast.

Bamboos.—The decrease is due to the fact that Attani bamboo coupes I, II and V and the bamboo block above the upper boundary of the present Hulikal block were sold for Rs. 8,510 for two years ending 31st March 1929, out of which Rs. 7,410 was collected during 1927–28 in North Coimbatore. This has been partly compensated by the better prices obtained for the bamboo coupes in Bargur Range of Kollegal and also in Madura and Tinnevelly owing to keen competition.

Grazing and minor produce.—The increase is chiefly due to better prices obtained for Konnai and Somai barks, and gallnuts in Kollegal. The minor forest produce of Kollegal and Ramapuram Ranges was sold for two years (1st July 1927 to 30th June 1929). There was greater demand for gallnuts and there was competition for one lot of minor produce in North Coimbatore.

Better prices were obtained for gallnuts and minor produce in South Coimbatore also. Against these, there was a small decrease in Tinnevelly due to want of proper bids, and sale of fewer manure leaf tickets.

50. *Free grants.*—The grants were made for rebuilding of houses destroyed by fire.

CHAPTER V.—FINANCIAL RESULTS.

51. The following statement shows the financial position of the year under report compared with that of the previous year:—

	1927-28.	1928-29.
	RS.	RS.
Revenue	10,07,636	10,85,371
Plus	16,269	...
Deduct—Refunds minus	1,411	9,070
Total ...	* 10,22,494	10,76,301
Expenditure.		
(*b*) Conservancy and works, including 52-A. Capital outlay ...	† 1,63,961	‡ 2,03,880
(*c*) Establishments	3,99,825	3,55,840
	5,63,786	5,59,720

* Includes Rs. 5,446 relating to VI Circle and excludes Rs. 1,650 relating to Tinnevelly realized in the IV Circle. The net revenue is therefore Rs. 10,02,429.

† Excludes Rs. 6,162 relating to 52/C-II Regeneration and Rs. 3,192 relating to investments in Government commercial concern.

‡ Excludes Rs. 6,523 relating to 52/C-II Regeneration and Rs. 6,373 by recoveries of investments in Government commercial concern.

Of the gross receipts, 66 per cent was derived from the major produce, 8 per cent from the minor produce, 13 per cent each from grass and grazing and miscellaneous items. Of the expenditure, 16 per cent was incurred on exploitation, 25 per cent on upkeep and improvement, and 59 per cent on miscellaneous items.

Receipts.

52. The increase was mainly due to—

(1) greater quantity of sandalwood extracted in Kollegal and transported to Satyamangalam and better prices realized at the auction;

(2) under 'Minor produce' the increase is mostly in North Coimbatore;

(3) under 'Rent of buildings' there has been a small increase. There has been an increase of about Rs. 30,229 under 'Recoveries of indirect charges'; and

(4) the revenue realized by the sale of Valparai sleepers has been included in the South Coimbatore division for the first time.

Expenditure.

53. 8. (*b*) *Conservancy and works and* 52-*A. Capital outlay.*—The increase was mainly under the following heads:—

Timber.—Due to exploitation expenses by the Assistant Working Plans Officer in Kannikatty experimental plot and to the greater quantity of sandalwood extracted in Kollegal.

Timber removed by purchasers and consumers.—Due to increase in the number of watchers sanctioned and employed.

Roads and bridges.—Due to increased expenditure on the roads in Kollegal to make them fit for motor traffic, and thereby to enable the District Forest Officer to inspect sandalwood operations efficiently.

Roads and bridges—Works in progress.—Due to completion of incomplete works of 1927–28.

Roads and bridges—New works.—Due to metalling of one mile in Hasanur-Bailur road in North Coimbatore and further extension of Sirumalai-Anjukulipatti road in Madura.

Buildings—Works in progress.—Due to completion of incomplete works of 1927–28.

Buildings—New works.—Due to improvements to three buildings in Kodaikanal and construction of compound wall to Surlipatti depot in Cumbum range of Madura.

54. (*c*) *Establishment.*—There has been a decrease due to reduction of foresters and forest guards.

The revenue outstanding at the end of the year was Rs. 1,89,812-12-1 of which Rs. 2,770-1-5 fell due within the year. Rupees 16,221-6-0 represents value of deficits on sandalwood requiring sanction to write off. The estimated value of timber and other produce at sale depots at the end of the year was Rs. 32,290 against Rs. 37,397 at its commencement.

The financial results of each district are dealt with below taking into account the direction charges apportioned to the divisions.

All the divisions worked at a profit.

KOLLEGAL.

	1928-29.	1927-28.
	RS.	RS.
Receipts	2,04,169	1,26,809
Charges	93,526	81,660
Surplus	1,10,643	45,149

Receipts.—There has been an increase of about Rs. 79,000 in the receipts from all items except timber, in which there is a decrease of about Rs. 1,200. The increase is due to larger quantity of sandalwood extracted and transported to Satyamangalam. There have also been increases, under bamboos and minor produce due to the better prices obtained owing to keen competition, and under miscellaneous due to increased contribution realized from the District Board. The grazing revenue is also steadily increasing.

Charges.—The increase is due to larger quantity of sandalwood extracted, but this has been partly compensated by decrease under 'Establishment' due to reduction of foresters and guards.

NORTH COIMBATORE.

	1928-29.	1927-28.
	RS.	RS.
Receipts	3,79,361	3,69,661
Charges	1,18,059	1,17,211
Surplus	2,61,302	2,52,450

Receipts.—There has been an increase under fuel, due to better prices obtained for fuel coupes. The decrease under 'Sandalwood' is due to disposal of less quantity. In 1927-28 revenue was realized by sale of reserve stock of sandalwood: hence the decrease. There was a decrease under 'Bamboos and grazing' also. The latter is due to the transfer of certain reserves to panchayats. There was increase under 'Minor forest produce' and other sources also.

Charges.—There was increase under 'Sandalwood' due to extraction of a larger quantity, under 'Timber' due to employment of additional watchers, under 'Roads' due to metalling of one mile of Hasanur-Bailur road and maintenance of minor roads and under 'Supplies and services' due to refund of grazing fees to Odanthorai panchayats for three years. This has been compensated by the decrease under establishment due to reduction of foresters and forest guards.

SOUTH COIMBATORE.

	1928-29	1927-28.
	RS.	RS.
Receipts	1,15,475	1,15,687
Charges	1,22,518	1,42,214
Deficit	7,043	26,527

N.B.—The figures for 1927-28 now given includes adjustments made by the Accountant-General in April 1929 and hence differs from that given last year.

Figures for the commercial concern and the Forest Utilization Officer's sales and from Valparai project are not included in the above. The audit report has not yet been received.

Including these, the position is—

	1928-29	1927-28.
	RS.	RS.
Receipts	3,76,704	4,32,639
Charges	2,86,196	4,03,939
Surplus	90,508	28,700

Receipts.—The decrease in the revenue is due to the fact that the sale of sawn timber in Pollachi depot and of timber in London Market was dull.

Charges.—There was increase * under 'Works' due to carting of more timber to Pollachi, and that under 'Establishment' to the payment of pay and travelling allowance to two Assistant Conservators of Forests and higher grade rangers posted to the division.

MADURA.

	1928-29.	1927-28.
	RS.	RS.
Receipts	2,08,985	2,19,948
Charges	1,27,245	1,43,323
Surplus	81,740	76,625

* The actual expenditure during the year is Rs. 2,65,704 (2,86,196 — 20,492, the loss on the Mount Stuart Commercial concern for 1927-28) as against Rs. 2,48,761 (4,03,939 — 1,55,178, the loss on Mount Stuart Commercial concern for 1926-27). Thus, there is an increase in expenditure during the year under report of Rs. 16,943.

Receipts.—The decrease is due to the postponement of extraction of timber in Cumbum range, till the completion of the enumeration of trees in Surliar plateau, and fall under timber and fuel in the unreserved lands.

Charges.—The increase is under 52-A. Capital outlay, due to further extension of Sirumalai-Anjukulipatti Road and improvements done to three buildings in Kodaikanal, and construction of compound wall to Surlipatti depot in Cumbum Range.

The decrease under establishment is due to a junior officer being in charge of the division for about seven months and reduction under foresters and guards.

TINNEVELLY.

	1928-29.	1927-28.
	RS.	RS.
Receipts	1,54,953	1,71,063
Charges	1,02,971	1,01,353
Surplus	51,982	69,710

Receipts.—The decrease in revenue is due to low amounts fetched at the coupe sales for want of proper bids.

Charges.—The increase under conservancy and works is due to the exploitation expenses incurred by the Assistant Working Plans Officer in Kannikatti experimental plot, and the pay of the increased number of watchers entertained during the year.

The decrease under establishment is due to the transfer of an officer on higher pay, the abolition of a clerk's post in the District Forest office, and reduction in the number of foresters and forest guards.

TANJORE.

	1928-29.	1927-28.
	RS.	RS.
Receipts	12,032	15,530
Charges	1,771	1,479
Surplus	10,261	14,051

The fall in revenue was due to there being no offer for some of the items of minor forest produce.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

55. *Kollegal.*—The *Acacia dealbata* poles raised in 1921 near Bellaji (5,000 feet elevation) are thriving. *Acacia dealbata* and *Acacia decurrens* seeds were sown in beds near Bellaji. The seedlings are doing well.

Sandal was dibbled in almost all the beats as usual. The result is reported to be a failure due to the complete failure of the South-west monsoon.

Seeds were sown, again in favourable places during North-east monsoon, and the results are reported to be satisfactory.

The experiment of sowing teak seeds near Araipalayam was a complete failure due to the failure of the South-west monsoon.

North Coimbatore—Satyamangalam Range.—In Karapalayam a plot of five acres was selected for experiment. In half of this area, rosewood, vengai and selavagai were reserved, felling and burning the rest of the growth. The Sholagas were permitted to raise cereal crops in the area, and in return were made to dibble seeds of rosewood, selavagai and vengai 6 feet apart, and to dig trenches round rosewood trees. The results are reported to be satisfactory.

In the other plot, seeds of the above species were dibbled where bamboos and other growth had been felled and burnt. The results are not encouraging.

Sandal seeds were dibbled in baskets at Geddasal at a cost of Rs. 33-11-0 with a view to transplanting them. The operation was stopped, as results did not justify the expenditure.

A small piece of sandalwood weighing 120 tolas, which exhibited signs of rot inside was sent to the Research Officer, Dehra Dun. The result of the examination has not been received yet.

South Coimbatore—Tunacadavu Range.—The Adina plants in the natural regeneration experimental plot below the Mount Stuart bungalow are doing well.

The experiment of raising teak and rosewood, in conjunction with hill paddy undertaken last year, was a failure, due to the very bad monsoon, but about 30 per cent of the teak has survived. The area will be restocked this year, the weed growth in this area is less than elsewhere due to the suppression of weeds while the paddy was on the ground.

Punachi Range.—Measurements were taken in the one acre sample plot in the Punachi working circle of *Pterocarpus Marsupium* maintained to find out, the height growth, and the percentage of survivals, when tended and left untended. The result is as follows:—

	Seedlings present.	Average height in inches.
Southern portion tended...	733	12
Northern portion untended	918	12·2

Seven sholas in Konalar side are protected from fire to find out whether the sholas extend when they are rigidly fire protected.

The lantana and evergreen thickets are burnt as usual annually in periodic block 1 to encourage natural regeneration of valuable species.

Udamalpet Range—Mayuthu sandal plot near Kombu Rest-house.—All the saplings are healthy, and they vary from 4 to 20 feet in height. As these are in a well protected area no danger is apprehended.

The seedlings in Esalmanthorai Rest-house and Chinnaseriai are doing well. The saplings in the small experimental plot in Nallar valley close to the common boundary between Udamalpet and Pollachi ranges are healthy and vary from 4 to 8 feet in height.

Madura.—In the experimental plots at Vannathiparai, the operation prescribed in the working scheme was continued, the object being to produce natural regeneration helped by artificial regeneration, by sowing teak, rosewood, *Albizzia lebbeck*, *Odoratisma* and *Pterocarpus Marsupium*.

Seeds were sown at stakes 6′ × 6′ in May 1928, and seedlings were weeded when necessary in two plots, Plot No. 1, 1·9 acres and Plot No. II, 0·73 acre. The result of the enumeration in April 1929 is given below :—

Species.	Natural regeneration.		Artificial regeneration		Failures at stakes.		Remarks.
	Plot No. 1.	Plot No. II.	Plot No. 1.	Plot No. II.	Plot No. 1.	Plot No. II.	
Rosewood ..	497	92	175	42	594	112	Plot No. 1. 95 rows of stakes natural regeneration very good.
Albizzia, Odoratisima and lebbeck ..	511	145	227	93	230	112	Artificial regeneration.
Adina ..	578	24	..	..	..	..	Only 24 per cent survivals.
Melia ..	170	28	..	..	..	..	Plot II. Artificial regeneration.
Vengai ..	..	..	25	13	432	112	Survivals 28 per cent.
Teak ..	..	..	58	28	278	112	Comparatively natural regeneration is good.

All trees except Adina and rosewood were cut and removed with the object of producing natural regeneration in

	ACS.
Plot No. III	1·5
„ IV	0·2
„ V	1·5
„ VI	2·52

The result of the enumeration of seedlings made in April 1929 is given below :—

	Rose-wood.	Albizzia, Odorati-sima and lebbeck.	Adina.	Melia.	Ste-phegyna.	Steros-perum.
Plot No. III	1,047	115	22	38	..	..
,, IV	99	163	12	..	..	..
,, V	168	298	276	63	254	189
,, VI	This plot was badly run over with weeds and consequently natural regeneration was poor.					

Coupe I, extent 5 acres, was clearfelled, burnt and sown with seeds of the same species. Seeds were sown 6 feet apart at stakes in June 1928.

The coupe has been subdivided into sub-blocks roughly, and enumeration was made at the end of March 1929.

Sub-block numbers.	Species.	Number of stakes.	Survivals.	Other species
I	Rosewood	513	230	6 vagai.
II	Teak	1,311	782	Rosewood 6, vagai 28.
III	Vengai	397	125	Vagai 25, teak 5.
IV	Vagai	414	234	Rosewood 15, teak 3.
V	Rosewood	758	282	Teak 17.
VI	Vengai	310	75	Rosewood 19, vagai 16.
VII	Vagai	380	218	Rosewood 25, teak 1.
VIII	Rosewood	818	256 Rosewood	Teak 26, vagai 103.
IX	Mixed	1,166	273	Teak 88, vagai 58, vengai 12.
X	Vengai	288	97	Rosewood 43, vengai 18.
	Total ..	6,383	3,107	

Percentage of survivals works out to 48·64. The copice growth of rosewood and advanced growth of natural seedlings is good.

Hopea dibbled near Kumili in June 1927 has failed. Seventy-two Aini which were dibbled at the same time have survived.

Tinnevelly.—In February 1928, an experimental plot of 67 acres was opened in the Mesua Zone along Martin's hut bridle-path, and 283 trees were marked for felling on the selection method Some of these selected trees were subsequently discarded to reduce the intensity of the felling. The object of the experiment is to ascertain how these evergreen areas can best be regenerated and what market exists for the various species at Ambasamudram sale depot. One hundred and fifty-three trees were actually felled, of which 9 were rejected as unsound and 131 were converted. Heavy rain prevented the conversion of the remaining 13 trees.

The cost of extraction per cubic foot was Rs. 1-1-0 which included, in addition to felling, conversion and transport charges, compensation to sawyers, commission, cost of sheds, and cost of conversion of 1 mile 4 furlongs of Martin's hut bridle path into a cart-track. The prices obtained at the sales were Rs. 1,399-15-0 for 156 broad gauge sleepers, Rs. 898 for 280 metre guage sleepers and Rs. 6,696-4-0 for other units.

The net profit was Rs. 440. The experiment is incomplete.

Silvilcultural and regeneration experiments at Kannikalty by the Assistant Working Plans Officer.—Experimental coupe 67 acres. Cutting of climbers and thorny growth was done over the whole coupe at a cost of Rs. 58-8-0.

Natural regeneration experiments.—Three plots of 1 acre each were opened in the coupe in March to study the effect of gradually opening the canopy over the advance growth and young regeneration. More plots will be opened as necessity arises.

Nursery experiments.—Two nurseries were opened, one in the unworked evergreen forests and the other in a portion of clear-felled evergreen forest, in order to see the best method of regenerating various evergreen species. The experiments are still in progress.

CHAPTER VII.—ADMINISTRATION.

56. Mr. T. A. Whitehead held charge of the Circle throughout the year.

Changes in the territorial jurisdiction—Tinnevelly.—Srivaikuntam Range was newly formed in November 1928 from Nanguneri Range, which was split up into two ranges—vide Chief Conservator's Ref. No. 8309/27-B-2, dated 22nd August 1928, based on G.O. Mis. No. 1333, Development, dated 11th August 1928.

57. *Health of the establishment.*—Continued to be good in Tinnevelly except at Kannikatty, where the cold, isolation and leaches are trying, fair in Madura, and not good in North Coimbatore and Kollegal. In South Coimbatore, health of the establishment improved, as a result of the sanitary measures taken, though there is malaria in the hot season. Several subordinates in Kollegal and North Coimbatore had to be granted leave on medical grounds. The casualties during the year were, one forest guard and one bungalow watcher in Kollegal, one forest guard in North Coimbatore and one Forester in Tinnevelly, who all died of the effects of malarial fever.

58. *Sanitation—South Coimbatore.*—A sum of Rs. 1,139 was spent for draining the swampy areas in Tunacadavu Range, and

clearing and burning the growth round Topslip as an anti-malarial measure. No special anti-malarial measures were undertaken in Punachi Range in view of the shifting of the range headquarters from Attakatty to Waterfall.

59. *Tours.*—The Mount Stuart Forests were inspected by the Chief Conservator of Forests and the Chief Forest Engineer at the beginning of July 1928, and the first week of November 1928, and by the Hon'ble Mr. T. E. Moir, Finance Member, during the 1st week of November 1928. The Conservator toured in all the divisions of the circle, spending more than six months in camp. All the District Forest Officers toured for more than the prescribed minimum, except the District Forest Officer, Kollegal, who was in camp for 176 days. The short touring was due to the fact that the District Forest Officer was obliged to stay at headquarters for certain periods in connexion with a departmental enquiry.

60. *Inspection of District Forest and Range Offices.*—The Conservator inspected all the District Forest Offices in the circle during the year, and the result of these inspections was on the whole satisfactory, although there is room for improvement all round. The clerk, who was reported to be absconding in Madura, has since been traced, tried under section 409 of the Indian Penal Code and sentenced to one year's rigorous imprisonment on each count. The matter is still under investigation, and final report is awaited from the District Forest Officer. As regards the unremitted amount of Rs. 100 of earnest-money deposit, the matter has been enquired into, money refunded to the party, and the subordinate responsible for the carelessness punished. The District Forest Officers inspected all the ranges in their districts, and the results are reported to be generally satisfactory, although here too in several ranges there is room for improvement.

61. *District Forest Officers' Accounts—Inspection.*—Audit staff of the Accountant-General's office inspected the accounts of all the divisions, and the result was reported to be satisfactory.

The accounts of the Mount Stuart commercial concern were audited by the staff of the Assistant Director of Commercial Audit after the close of each quarter.

62. *Madras Forest College*—One III Grade Forester was deputed for training in the Madras Forest College during the year for 1928—30 course.

63. *Vernacular Training School.*—Of the 15 Forest Guards of Kollegal deputed to the Vernacular Training School held at Denkanikotta, North Salem division, for the 1928-29 sessions, 4 obtained first-class certificates, and the remaining 11 second-class certificates

CHAPTER VIII.—GENERAL.

(1) Formation and management of panchayats.

64. Odanthorai reserve in North Coimbatore 6,066·90 acres, was handed over to the panchayats during the year.

The working of the grazing panchayats under the forest village system in Mettupalaiyam Range having been found unsatisfactory, proposals were submitted to abolish this system.

The third-class forests in the Dharapuram taluk of South Coimbatore are under the control of the Revenue Department as also in Madura.

About 500 acres of land on the south-western corner of Kodiakkadu reserve in Tanjore have been set apart for the communal use of the villagers. Panchayat system is not working in this district.

(2) Measures for improving local supplies and facilities.

65. Except in two reserves in Tinnevelly no leaf manure was removed in other divisions, the demand for the same being limited and met from patta lands and unreserves. The issue of tickets in Nanguneri and Srivilliputtur Ranges of Tinnevelly to the public for removal of manure leaves continued during the year; but the revenue under this head fell to Rs. 1,977 against Rs. 4,453 in last year. This is reported to be probably due to 1,500 acres in Srivilliputtur and 150 in Nanguneri Ranges having been sown with green leaf manure crops by the ryots.

Mr. Morris of Honnametti estate was permitted to remove dry leaves in the Bellaji sholas, on payment of one anna per head-load. The revenue realized during the year was Rs. 230.

Supply of fuel and agricultural implements—Kollegal.—The fuel coupes, as usual, were worked on the controlled permit system, there being no bids in the auction sales held. The removals are effected under the supervision of the beat subordinates who look to the proper coppicing of the trees felled. The tentative working scheme approved was followed.

North Coimbatore.—The requirements of the villagers are met from the unreserves and coupes leased to contractors.

South Coimbatore.—The spokes and felloes converted from the top-ends of trees felled in the compartment of Mount Stuart and Punachi Working Circles were offered to the public for sale. Brake poles were cut and sold departmentally on the Anamalai Ghat road for the use of cartmen. Three hundred and twenty-seven plough shafts, 33 ploughs and five yokes were removed by the ryots from a special coupe, opened for the purpose in Udamalpet Range.

Grazing was prohibited in felled areas, for five years in Pollachi Range and seven years in Udamalpet Range after felling. The concessions granted as a result of the Forest Committees' Conference in 1922, in the matter of grazing, penning, etc., were continued during the year.

Madura.—The demands of the villagers were met, as usual, by the coupe contractors, in accordance with the terms of agreements.

Tinnevelly.—Permits are being issued by the Revenue department for the removal of Acacia arabica from unreserved lands for making agricultural implements on payment of prescribed seigniorage fees. There was no shortage of fuel.

Tanjore.—There has been no complaint from the public about the price of fuel fixed by contractors.

(3) IMPROVEMENT OF WATER-SUPPLY IN GRAZING GROUND.

66. *North Coimbatore.*—Two tanks in Guthialathur reserve were repaired at a cost of Rs. 365.

Madura.—Rupees 78 was spent in improving a tank and two springs in the reserves in Ayyalur range. The work in two cases is incomplete, and in the other, there was water, and it was much used by the ryots and cattle.

Timber transit rules.—The rules are reported to have worked satisfactorily. There were 4 cases of breach of these rules in Kollegal, and 6 in Madura.

Sandalwood transit rules.—A revision of the Sandalwood transit rules is under consideration. The registration of property mark of Khazi Syed Yusuf Sahib Bahadur for 1929-30 was refused, and the result of the appeal by the party is reported to be awaited.

67. *Jungle tribes.*—The jungle tribes are employed as usual. A proposal for the amelioration of the condition of these people in North Coimbatore is under consideration.

68. *Mining and quarrying.*—There were no alterations in the rules.

69. *Cultivation in reserved forests—Kollegal.*—The survey and disreservation of the Honnametti estate for assignment on ryotwari patta has not been completed. Hence the estate continued to be held on lease by Mr. K. C. Morris.

South Coimbatore.—There are two mulcer settlements, one at Sircarpathi 2 miles from Sethumadai and the other at Avarakodipallam about 6 miles from Paruthiyur.

The mulcers at Sircarpathi are allowed to cultivate 39·05 acres of arable land on condition that they supply labour to Pollachi and Tunacadavu Ranges when called on to do so. These are of assistance to the department in putting out fires. The mulcers at the

other settlement are reported to have abandoned the settlement, and migrated for work in Punachi range.

70. *Livestock.*—(i) *Elephants—South Coimbatore.*—There were 25 elephants at the commencement of the year, and six were captured during the year; of these three died, three were handed over to the Raja of Kollengode and four sold during the year; the balance at the close of the year was 21. The estimated value of these elephants is Rs. 62,100.

(ii) *Other animals.*—Nil.

71. *Veterinary Assistant.*—The livestock was in charge of an Assistant Veterinary Inspector, and was inspected by the Inspector of Livestock twice—one in April 1928 and again in October 1928. The health of the elephants continued to be fairly satisfactory.

72. *Civil suits.—North Coimbatore.*—A suit filed by the panchayat of Odanthorai against the Government for failure to hand over to them, the trees felled in the boundary of the block to cover the cost of demarcation, was compromised on payment of Rs. 370 in full settlement of all their claims against the Government.

South Coimbatore.—Three civil suits were filed against certain advances during the previous year. A sum of Rs. 17-8-0 was recovered against an outstanding of Rs. 358-8-0. As the defaulters were either paupers or could not be found anywhere the balance of Rs. 341 has been written off as irrecoverable.

Madura.—The second appeal referred to in the previous year's report is reported to be still pending in the High Court.

Tinnevelly.—The civil suit pending last year in the District Munsif's Court, Srivaikuntam, against revenue lessees and Government in respect of damage caused to produce of certain lessees, was dismissed with costs: so far as the Government was concerned as a defendant, the matter is *sub judice* on appeal in the Sub-Court at Tuticorin.

A civil suit is reported to be pending in the District Munsif's Court, Ambasamudram, against a sawyer to whom advance was made by the Assistant Working Plans Officer, and three more such suits have to be filed.

73. *Control of unreserved land by the Forest department.*—The department has no control over the unreserved lands in the circle except over the sandalwood working circles in Kollegal and North Coimbatore, and also an area of 866·8 acres of unreserved lands included in the Bargur working circle and exploited for bamboos, along with the Tamarakarai bamboo working circle.

ENCLOSURE

REPORT ON EACH FOREST DISTRICT, 1928-29.

KOLLEGAL.

Description.—The forest division covers the hills and plateaux of the Kollegal and Bhavani taluks of the Coimbatore district. The forests are of a poor, open deciduous type with an undergrowth of thorns, but support a very valuable stock of sandalwood at elevations between 2,000 and 4,000 feet.

On the west the Biligirirangan mountain and on the north and east the Cauvery form the natural boundaries of the division. To the south lies the North Coimbatore forest division.

There is good grazing available throughout the division.

Area.—Nine hundred and forty-seven square miles.

How the forest district is split up into subordinate administrative charges.—The whole division is divided into three ranges consisting of 49 beats.

Names of ranges with headquarters.

Ranges.	Headquarters.
Kollegal	Kollegal.
Ramapuram	Cowdalli.
Bargur	Thattakarai.

Cost of administration.

	Rs.
Pay of officers	6,864
Rangers	5,532
Subordinate staff	17,686
Clerical staff	7,191
Allowances	9,197
Contingencies—Other charges	3,851
Total	50,321

Cost under other important heads.

8. *b.* Conservancy and works—

	Rs.
(i) Sandalwood	6,272
Grass and other minor produce	...
(ii) Timber and other produce	10,589
(iii) Renewals and replacement of stores	78
Communications and buildings—	
Roads and bridges	10,153
Buildings	1,420
Other works	5
(iv) Fire protection	776
Other works	338
(v) Miscellaneous	185
Total	29,816

52—*A. Capital.*

		Rs.
(iii)	Purchase of stores	147
(v)	Roads and bridges—	
	Works in progress	...
	New works	397
	Buildings—	
	Works in progress	...
	New works	2,272
	Other works—New works	68
(vi)	Demarcation	777
	Total ...	3,661

Income from main sources—

		Rs.
VIII. (*a*)	Sandalwood	1,23,067
	Timber	2
VIII. (*b*)	Timber	3,625
	Firewood	4,249
	Bamboos	7,050
	Grazing, etc.	49,778
	Minor produce	6,885
	Miscellaneous including driftwood, etc. ...	9,806
	Total ...	2,04,462
	Deduct—Refunds ...	300
		2,04,162

Chief works done.—Introduction of sandalwood in suitable places and sandalwood extraction are the main operations in the district.

In order to facilitate extraction of forest produce mainly sandalwood, and inspection of forests, three ghat roads in the district are repaired annually—

The Kollegal-Hannur-Tamarakarai Road.

The Kollegal-Lokkanhalli-Bailur Road.

The Cowdali-Chengadi-Ponnachi Road.

Fire protection of reserves, climber cutting, stock-mapping and enumeration of sandalwood trees, demarcation, improvement of water-sources, coupes for the supply of firewood and small timber are other important works undertaken.

Coimbatore North.

Description.—The division comprises the hills and plateaux of the Gobichettipalaiyam, Bhavani and Avanashi taluks of the Coimbatore district forming a continuous block from the Nilgiris and the Mysore territory on the west to the Cauvery on the east. To the north lies the Kollegal division. The forests are generally open and deciduous, but support a very valuable stock of sandalwood at elevations between 2,000 and 4,000 feet. Teak and Rosewood are found in the Minchigully valley.

There is good grazing available throughout the division.

Area.—Eight hundred and seventy-two square miles, of which 42 square miles are under the management of village panchayats.

How the forest district is split up into subordinate administrative charges.—The division consists of four ranges with 54 beats—

Ranges.	Headquarter.
Satyamangalam	Satyamangalam.
Talamalai	Do.
Bhavani	Andiyur.
Mettupalaiyam	Mettupalaiyam.

Cost of administration—

	Rs.
Pay of officers	11,722
Rangers	8,813
Subordinate staff	18,703
Clerical staff	7,645
Menials	1,612
Allowances	11,370
Contingencies	3,460
Total ...	63,325

Cost under other important heads—

8. *b.* Conservancy and works—

	Rs.
(i) Forest produce removed by Government agency—	
Timber	392
Firewood and charcoal	370
Sandalwood	13,773
Other minor produce	92
(ii) Timber and other produce removed by consumers and purchasers	10,416
(iii) Renewals and replacement of stores	179
Communications and buildings—	
Roads and bridges	8,604
Buildings	3,435
Other works	38
(iv) Maintenance of boundary	301
Regeneration	97
Fire protection	1,366
Other works	953
(v) Miscellaneous	2,144
Total ...	42,160

52—*A. Capital*

		Rs.
(iii) Purchase of stores, tools and plant		551
(v) Communications and buildings—		
Roads and bridges—		
Works in progress		79
New works		...
Buildings—		
Works in progress		...
New works		1,315
Other works—		
Works in progress		...
New works		157
(vi) Demarcation		111
	Total ...	2,213

Income from main sources.

		Rs.
VIII. (*a*)	Sandalwood	2,37,120
	Timber	2,806
	Firewood	797
	Other minor produce	2
VIII. (*b*)	Timber	2,615
	Firewood	24,067
	Bamboos	22,760
	Grazing	43,094
	Minor produce	31,587
	Miscellaneous including driftwood, etc. ...	17,518
	Total ...	3,82,276
	Deduct—Refunds ...	2,922
	Total ...	3,79,354

Chief works done.—Introduction of sandalwood in suitable places, extraction of sandalwood, supply of firewood, agricultural implements, small timber and bamboos to the neighbouring towns and villages are the important operations in the district.

The following ghat roads are maintained by the department :—

Hassanur-Bailur road.

Gairmalam road.

Bargur ghat road.

Dimbam-Talamalai road.

Fire protection of reserves, stock-mapping and enumeration of sandalwood trees, climber cutting, demarcation, improvement of water-sources are other important works undertaken.

SOUTH COIMBATORE.

Description.—The forest division covers the Anamalais and their foot hills. The central portion in the higher elevations consisted originally of tropical evergreen forest. Vast areas of this have now been allotted to planters. To the west is the magnificent Mount Stuart timber forest most of which is deciduous. To the east the quality of the forest deteriorates, as the rainfall decreases. Along the northern outer slopes and foot hills are fuel and pole forests.

Area.—Three hundred and ninety-one square miles. Of this 5 square miles are ryots' forests under the control of the village panchayats.

How the forest district is split up into subordinate administrative charges.—The division is divided into four ranges. Of these Tunacadavu and Punachi ranges have no beats, and the other two ranges are split up into 17 beats

Ranges.	Headquarters.
Tunacadavu range	Topslip.
Pollachi	Anamalai.
Punachi	Waterfall.
Udamalpet	Udamalpet.

Cost of administration.—As Tunacadavu range is commercialized, the charges for the year 1928–29 are not known as audited figures for the last quarter have not yet been adjusted by the Accountant-General in his accounts.

Last year's figures are —

Tunacadavu range.

	Rs.
Pay of officers	4,795
Rangers	9,804
Subordinate staff	
Clerical staff	
Allowances	3,117
Contingencies and other charges	1,434
Total ...	19,150

The cost for the non-commercialized ranges is as follows :—

1928-29.

	Rs.
Pay of officers	15,381
Rangers	6,511
Subordinate staff	8,180
Clerical staff	7,577
Menials	1,308
Allowances	9,212
Contingencies and other charges	5,623
Total ...	51,792

Cost under other heads.

8. *b.* Conservancy and works—

	RS.
(i) Forest produce removed by Government agency —	
Timber	6,457
Firewood and charcoal	1,845
Grass and other minor produce	...
(ii) Timber and other produce removed from the forest by purchasers and consumers	2,662
(iii) Maintenance and renewals—	
Feed and keep of cattle	6,369
Renewals and replacements of stores, tools and plant	368
Communications and buildings—	
Roads and bridges	803
Buildings	1,485
Other works	38
(iv) Conservancy and regeneration—	
Maintenance of boundary	57
Regeneration	532
Fire protection	320
Other works	410
(v) Miscellaneous	— 16
Total ...	21,330

52—*A. Capital outlay*—

b. Conservancy and works—

	RS.
(iii) Rent of leased and part-owned forests	1,250
(iv) Livestock, stores, tools and plant—	
Purchase of livestock	4,367
Feed and keep of livestock	813
Purchase of stores, tools and plant	91
(v) Works—	
Roads and bridges ... { Works in progress	...
{ New works	15,250
Buildings ... ... { Works in progress ...	4,819
{ New works	9
Other works ... { Works in progress ...	...
{ New works	...
(vi) Organization, improvements and extension of forests—	
Sowing and planting	5,740
Fire protection	240
Other works	72
(vii) Miscellaneous—	
Supplies and services—Miscellaneous	492
Total ...	33,143

Income from main sources—

	Rs.
Timber	1,426
Firewood	8,254
Bamboos	16
Other minor produce	37
Sandalwood	
Forest department—	
Timber	3,332
Firewood	12,621
Other minor produce	10,402
Bamboos	5,823
Grazing	5,161
Other sources, including driftwood, etc.	19,112
Recoveries of indirect charges from commercial concerns	47,263
Profit from Government commercial concerns ...	...
Recoveries of investment in commercial undertakings	2,048
Total ...	1,15,495
Deduct—Refunds ...	27

Revenue from Tunacadavu range is excluded. It will be reported later. Last year's figures are—

	Rs.	
Timber	2,05,808	
Profit in carriage	15,145	
Rents	668	(half of this is creditable to regeneration,)
Interest	65	
Miscellaneous	758	
Total ...	2,23,654	

Chief works done are :—Extraction of timber from Punachi and Mount Stuart Working Circles, elephant capture, and regeneration of forests exploited.

Besides the above, the following were also carried out :—

Carting of timber to Pollachi for sale, cutting and conversion of spokes and felloes.

Anti-malarial measures to keep forest stations from malaria.

Repairs to roads and buildings and fire protection of reserves.

Madura.

Description.—With the exception of the Palnis and the Cumbum Valley, isolated fuel reserves lie scattered throughout the district. Forty square miles of reserve forest in the taluks of Kulittalai and Trichinopoly are also included in this division. In the lower slopes of the Palni Hills cardamom cultivation by the villagers is permitted on long leases.

Area.—Six hundred and eighty-four square miles. Of this 37 square miles are ryots forests. The decrease as from last year is due to disreservation.

How the forest district is split up into subordinate and administrative charges.—The whole district is divided into six ranges with 87 beats—

Ranges.	Headquarters.
Cumbum	Cumbum.
Kodaikanal	Kodaikanal.
Ayyalur	Ayyalur.
Sholavandan	Andipatti.
Palni	Palni.
Natham	Natham.

Cost of administration—

	Rs.
Pay of officers	11,296
Rangers	10,351
Subordinate staff	28,079
Clerical staff	8,041
Menials	1,610
Allowances	15,660
Contingencies and other charges	3,707
Total ...	78,744

Cost under other important heads—

8-b. Conservancy and Works—

(i) Timber	552
Firewood and charcoal...	1,031
(ii) Timber and other produce removed from the forest by consumers and purchasers	12,859
(iii) Renewals of stores	105
Communications and buildings—	
Roads and bridges	11,458
Buildings	3,396
Other works	213
Maintenance of boundaries	25
(iv) Regeneration	159
Fire protection	2,178
Other works	100
(v) Miscellaneous	273
Total ...	32,299

52-*A. Capital*—

		Rs.
(iii) Purchase of stores...	... ...	236
(v) Communications and buildings—		
Roads and bridges—		
Works in progress	... ...	2,050
New works ...	... ...	354
Buildings—		
Works in progress	... ...	...
New works ...	... ...	1,296
Other works—		
Works in progress	... ...	...
New works ...	... ...	...
(vi) Demarcation ...	... ...	1,099
Sowing and planting ...	... ...	373
Other works ...	... ...	1,066
Total	...	6,474

Income from main sources—

VIII. Forests—

Timber	... ...	4,587
Firewood	... ...	2,401
Bamboos	... ...	1
Forest department—		
Timber	... ...	16,185
Firewood	... ...	81,238
Bamboos	... ...	3,295
Grazing	... ...	28,508
Other minor produce	... ...	51,816
Miscellaneous including driftwood...	... ...	24,832
Total	...	2,12,863
Deduct—Refunds	...	3,886

Chief works done are :—Supply of fuel to the public, maintenance of long lines of communications belonging to the District Board as well as Forest departments. Experimental work is in progress at Vannathiparai. The pine plantations on the Palni hills are fire protected. Extension of cart tracks to tap fuel areas and enumeration of trees in the Cumbum valley were also done.

Tinnevelly Division.

Description.—A broad belt of evergreen forest clothes the ghats on the western border of the district, in the taluks of Nanguneri, Ambasamudram and Tenkasi. A portion of the forests also lies in the Srivilliputtur taluk of the Ramnad district. Owing to the value of these evergreens in protecting the head waters of the rivers and streams, they have been very lightly

worked in the past. An experiment is now being tried in the evergreen forests at Kannikatti, Ambasamudram taluk—to see what it will cost to place timber of evergreen species on the market, and regenerate the area worked over, satisfactorily. At the foot of the ghats is a belt of deciduous forests.

Area.—Four hundred and seventeen square miles, of which 11 are ryots' forests.

How the forest district is split up into subordinate administrative charges.—The whole division is divided into six ranges with 49 beats.

Ranges.	Headquarters.
Kodamadi	Ambasamudram.
Kannikatti	Do.
Kuttalam	Kadayanallur.
Srivilliputtur	Srivilliputtur.
Nanguneri	Sivanaperi.
Srivaikuntam	Srivaikuntam.

Cost of administration--

	Rs.
Pay of officers	11,150
Rangers	9,812
Subordinate staff	17,586
Clerical staff	9,591
Menials	1,508
Allowances	9,293
Contingencies and other charges	2,997
Total ...	61,937

Cost under other important heads—

8-b. Conservancy and Works—	
(i) Timber	8,740
Firewood and charcoal	3,980
Sandalwood	114
(ii) Timber and other produce removed from forests by consumers and purchasers	6,355
(iii) Renewals and replacements of stores	293
Communications—	
Roads and bridges	4,804
Buildings	1,433
Other works	98
Maintenance of boundaries	50
(iv) Regeneration	431
Fire protection	...
Other works	607
(v) Miscellaneous	135
Total ...	27,040

52-A. *Capital*—

					Rs.
(iii) Purchase of stores	...	...	...	...	57
(v) Communications and buildings—					
Roads and bridges—					
Works in progress	...	...	...	..	191
New works ...	...	...	...	...	955
Buildings—					
Works in progress	...	...	...	...	745
New works ...	...	...	...	...	1,610
Other works—					
Works in progress	...	...	...	...	...
New works ...	...	...	...	...	288
(vi) Sowing and planting	...	...	...	...	420
			Total	...	4,266

Income from main sources—

VIII. Forests—					
Timber	...	...	..	..	7,075
Firewood	...	...	...	...	8,312
Other minor produce	...	...	...	...	...
Forest department—					
Timber	...	...	...	...	447
Firewood and charcoal	...	...	...	...	86,298
Bamboos	...	...	...	...	849
Grazing	...	...	...	...	8,740
Minor produce ...	...	...	...	...	30,454
Miscellaneous including driftwood		...	...	...	13,199
			Total	...	1,55,374
			Deduct—Refunds	...	428

Chief works done are :—Extraction and supply of firewood to the public. Sandalwood in Srivilliputtur range is extracted and sent to the IV Circle for sale.

Experiments are being conducted in the evergreen forests.

The following are other items of work done :—

Construction of cart tracks to tap fuel areas.
Construction of quarters, etc., for subordinates.
Fire protection of reserves.
Regeneration.

In the Srivaikuntam taluk, palmyras are being planted in Kudiramoliteri reserve, to fix the shifting sands, and to form a valuable crop for the future.

SUMMARY OF PROGRESS MADE IN FOREST ADMINISTRATION DURING THE QUINQUENNIUM ENDING 1928-29.

In G.O. No. 91, Revenue (Special), dated 18th July 1921, it was ordered that the Forest Administration report should be compiled since 1920-21 for the official year ending 31st March instead of for the fasli year ending 30th June.

2. *Administration.*—The following officers held charge of this circle during the period under review :—

	From	To
Mr. H. F. A. Wood ...	20th December 1920	12th October 1924.
„ A. Wimbush ...	13th October 1924	19th May 1925.
„ D. T. Barry ...	20th May 1925	10th March 1927.
„ T. A. Whitehead ...	11th March 1927	to date.

3. *Changes in the controlling charges.*—The management of the Kaliavur reserve 158·07 acres in Tinnevelly was transferred to the Public Works Department during 1925-26 and the Executive Engineer was invested with the powers of a forest officer under clause (*d*) of section 59 of the Madras Forest Act.

38·64 acres of sandalwood Reserved Forest Block II in the Nilgiris district (VI Circle) was transferred to the North Coimbatore district (V Circle) from 15th February 1927. Consequent on the abolition of the Vayyampatti Range of the South Salem district (IV Circle) 19 reserves to the extent of 40·45 sq. miles were transferred to Madura in the year 1926-27.

During the same year, the reserve forests in the Tanjore district were transferred from the IV Circle to the V Circle.

In October 1924, the Tinnevelly Range of the Tinnevelly district was amalgamated with the Nanguneri Range. By 1928 the range was found to be rather unwieldy owing to the planting up of the Kudiramoliteri Reserve Forest and a bifurcation was considered necessary. The Nanguneri Range was bifurcated and the new Srivaikuntam Range was formed in November 1928.

4. *Organization.*—The strength of the executive establishment was reduced in 1927 as shown below :—

	Number as originally sanctioned.	Number as reduced.
Foresters	106	70
Forest Guards	431	300

5. *Changes in area.*—The area of reserve forests and lands under the control of the Forest department at the commencement of the quinquennium in the divisions now comprising this circle was 3,251 sq. miles, and the area at the close was 3,330 sq. miles. The increase is due to the adoption of the survey of India map area for the Guthiyalathur Reserve in North Coimbatore and the addition of the Vayyampatti Range and the forests in Tanjore district from the IV Circle to this circle. The increase has been lessened by disafforestation of Vaipar and Virusampatti reserves and a portion of Teri Reserve in Tinnevelly, estates and house-sites in Anamalais of South Coimbatore, and for grant of land to Mr. Mead in Madura.

6. *Forest Settlement.*—The following statement shows details as to forest settlement :—

In hand at the commencement of the quinquennium period.	Newly taken in hand during the period.	Total.	Finally settled during the period.	Balance.	Remarks.
SQ. MILES. ·356	SQ. MILES. ·343	SQ. MILES. ·699	SQ. MILES. ·699	..	..

7. *Demarcation.*—The total length of artificially marked boundaries at the close of 1928–29 was 2,815 miles as compared with 2,881 miles at the commencement of the quinquennium. The decrease is due to disafforestation of reserves in Madura, Tinnevelly and South Coimbatore. The length of boundaries still to be demarcated at the close of the period was 379 miles.

8. *Forest surveys.*—There were no surveys made by the Survey of India party during the quinquennium.

9. *Working plans.*—The total area under sanctioned working plans and schemes at the close of the quinquennium was 2,246 sq. miles against 1,433 at its commencement. The increase is due to the temporary working scheme sanctioned for Kollagal district, and also to the addition of the Tanjore, and Vayyampatti ranges from the IV Circle to this circle. The prepation of a new working plan in North Coimbatore division is underway by the working plan staff.

A revised working plan for the Mount Stuart Forests is under preparation by Mr. M. V. Laurie under the Working Plans Conservator.

Area for which working plans have still to be prepared is 342 sq. miles and that for which working plans are not required at present is 733 sq. miles.

10. *Communications, buildings and other works.*—The expenditure during the quinquennium is given below :—

		RS.
1924–25	...	26,730
1925–26	...	60,682
1926–27	...	56,657
1927–28	...	97,825
1928–29	...	83,142
Total	...	3,25,036

The average expenditure per annum amounted to Rs. 65,007, against Rs. 92,372 during the previous quinquenninm.

The increase during 1927–28 was due to the completion of the Topslip-Anapadi road, and that in 1928-29 due to the improvements and repairs to the Amarampalaiyam-Anapadi road. The road from Amarampalaiyam to Sethumadai was transferred to this department from the District Board.

11. *Forest offences.*—The average annual number of forest offences during the quinquennium under review was 5,127, against 4,249, in the last quinquennium.

12. *Fire protection.*—During the period under review, the average annual area under systematic protection was 516 sq. miles against 427. The percentage of failure was 2·23 per cent against 4·6 per cent in the last quinquennium.

13. *Protection from cattle.*—The whole forest area is closed to goats. The average area annually opened to grazing of all animals except goats was 2,468 sq. miles and area open to all animals except sheep and goats 241 sq. miles as against 2,321 sq. miles and 218 sq. miles in the last quinquennium. The percentage comes to 74·1 and 7·2 per cent respectively of the total area against 71 and 7 per cent in the last quinquennium.

The average number of animals permitted to graze in the quinquennium under review was 260,446 against 254,088 in the last quinquennium.

14. *Yield and outturn* —The total outturn of the forests during the quinquennium under review is as shown below :—

	In thousands of c.ft.
Timber	2,677
Fuel	15,858
Total ...	18,535

15. *Financial results.*—The revenue, expenditure and the surplus are given below :—

Years.	Gross revenue.	Expenditure.	Surplus.	Remarks.
	Rs.	Rs.	Rs.	
1924-25	11,69,954	7,09,029	4,60,925	
1925-26	9,65,898	5,38,382	4,27,516	
1926-27	9,08,589	5,31,838	3,76,751	
1927-28	10,07,636	5,63,786	4,43,850	
1928-29	10,85,371	5,59,720	5,25,651	
Total ..	51,37,448	29,02,755	22,34,693	

The gross revenue for the period under review was Rs. 51,37,448 and the expenditure Rs. 29,02,755 leaving a surplus of Rs. 22,34,693 against Rs. 58,37,154 under revenue, Rs. 35,16,502 under expenditure and Rs. 23,20,652 under surplus, during the last quinquennium.

16. *Forest education.*—During the period under review, there were no sessions of the Vernacular Training School held in any of the divisions of the circle. In 1927–28, fifteen forest guards were deputed for training to Salem, and out of the fifteen, all came out successful 4 obtaining first-class and 11 second-class certificates. One student sent to the Madras Forest College came out with honours in 1924–25, two with higher standard certificates in 1926–27 and one with higher standard certificate in 1928–29. One student is undergoing training now.

COIMBATORE,
6th September 1929.

T. A. WHITEHEAD,
Conservator of Forests, V Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1929.

SIXTH CIRCLE.

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. Alteration in Area.

(i) *Reserved forests.*

The total area of reserved forests at the beginning of the year was 1,847 square miles and at the end 1,839 square miles. The decrease was almost wholly due to areas disafforested in the Nilgiris where 4,195 acres were assigned mostly for cultivation of tea or coffee in accordance with G.O. Mis. No. 64, dated 12th January 1927. The largest individual instance of disafforestation was in Kundah and Addition Reserve where 1,105 acres were given for planting of Acacia decurrens.

(ii) *Reserved lands.*

There was no alteration and the area continued to be the same, viz., 106 square miles.

2. Forest Settlement.

No progress was made in the settlement of the five blocks (three in South Mangalore and two in the Nilgiris) referred to in form No. 26 for the following reasons.

South Mangalore division.—The settlement of the three blocks of (i) Karindala, (ii) Kinnanur and (iii) Eleri notified under section 4 in October 1926 is pending the theodolite survey of the villages and especially the survey of boundaries between warg and sircar kumries. Survey of the villages concerned was taken up during the year and the work is proceeding, but it is reported by the Settlement Officer that this will not be completed before March 1930. Consequently the Forest Settlement work is likely to be taken up only about the end of 1930.

The Nilgiris.—The notification of Mudumalai Kumabarakolli Block under section 16 is pending with Government. Addition No. II of Madanad reserve was notified under section 16 after the close of the year.

3. Demarcation.

Eleven miles of reserve boundaries were demarcated by clearing line and erecting cairns in Wynaad division. Three miles of boundary of reserves, or of portions of reserves, disafforested during the year were demarcated with cairns in the Nilgiris division. The work of clearing of boundaries and of repairing cairns was, as usual, attempted to be carried out by subordinates free of cost, but where the work was beyond the capacity of the establishment, small sums (amounting in all to Rs. 1,469) were sanctioned.

4. Forest Surveys.

The Madras Survey Party continued its operations in South Mangalore division and another party was working in the Nilambur division also.

There was no survey by Survey of India Party.

The surveys of coupes, regeneration areas, plantations, etc., were as usual undertaken departmentally.

The reference maps were maintained.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of working plans.

Work by the Working Plans Branch.—Revised working plans for the deciduous forests of Wynaad and for the whole of the Nilambur Valley Forests were completed during the year, but the latter only was sanctioned before March 1929 and the one for Wynaad received Chief Conservator's sanction just after the close of the year.

Mr. Davis, Working Plans Officer, Mangalore, after a preliminary inspection and stock mapping of some of the reserves of South Mangalore division submitted his reconnaissance report and on which Chief Conservator's orders have been issued.

The following schemes and working plans were prepared by the circle (i.e., *not by the Working Plans Branch*).—A preliminary scheme (mainly dealing with regeneration and tending in the exploited areas) for Chenat Nair reserve was drawn up by Assistant Conservator Mr. Lasrado and will be followed till a regular working plan, now under preparation, is ready.

Mr. Dyson's revised working plan for the Nilgiri plantations was brought into effect from the commencement of the year, though it could not be submitted to the Chief Conservator of Forests in time to obtain his final sanction within the year.

In North Mangalore, some field work was carried out to obtain data for revising the fuel and catechu schemes of Coondapoor range and for expanding Hopea regeneration in suitable localities.

The prescriptions of the existing working plans and schemes were generally followed and for the few unavoidable deviations proper sanctions were obtained.

2. Communications and Buildings.

Roads and bridges.—The total expenditure on 'new works' was Rs. 9,088 against Rs. 13,102 in the previous year and the expenditure on repairs amounted to Rs. 14,291 against Rs. 18,534 in the previous year.

The decrease under 'new works' was chiefly in Mangalore South and Palghat where in the previous year a larger scale road and bridle-path programme had to be carried out. The decrease under 'repairs' was chiefly in Palghat and was due to the fact that only about Rs. 1,000, were required for repairs to the Dhoni-Olavakot and Sappal roads against over Rs. 5,000 spent in the previous year.

The important new works costing over Rs. 1,000 each, executed during the year were—

	Rs.
South Mangalore division.	
1. Completion of the Aletti Reserve Extraction road including crossing across the Paiswani river—10½ miles in all (Rs. 5,020 were spent in 1927-28)	4,663
Wynaad.	
2. Improvements to part of Boothakal-Bavali road.	1,216
Palghat.	
3. Metalling Walayar-Nadupathi road—4½ furlongs.	1,125

Six hundred and eighteen miles of roads, bridle-paths and inspection paths were maintained at a cost of Rs. 14,291.

Buildings.—The total expenditure incurred on new works was Rs. 17,268 against Rs. 27,305 in the previous year, the amount spent on repairs being Rs. 11,055 against Rs. 8,591 in the previous year.

The decrease is accounted for by Wynaad where during 1927-28 we purchased from the Public Works Department, at a cost of Rs. 10,000, Revenue Divisional Officer's quarters at Manantoddy

for the use of the Extra Assistant Conservator stationed there. The increase under 'repairs' was chiefly in Wynaad, Nilambur and Palghat due to more expenditure required for repairs according to necessity.

Important new works were—

	Rs.
North Mangalore division.	
1. Range clerk's quarters at Shankernaraina ...	1,001
2. A shed to accommodate two forest guards at Andar	1,283
South Mangalore division.	
3. Ranger's rest-house at Baradka	1,850
4. Ranger's rest-house at Sankadakatte	1,222
Wynaad.	
5. Part construction of rest-house at Padri ...	1,438
Nilambur.	
6. Part construction of Extra Assistant Conservator's quarters at Nilambur	4,567

Other works.—The expenditure on new works amounted to Rs. 1,120 against Rs. 1,708 in the previous year. The main items under this head are construction of new wells near subordinates quarters or for forest rest-houses, and hence expenditure must vary according to necessity.

3. Protection of Forests.

(*a*) *General Protection.*

The following statement compares the total number of forest offences during the year under report with that of the previous year:—

Cases.	Fires.		Felling.		Grazing.		Other offences.		Total.	
	1927-1928.	1928-1929.	1927-1928.	1928-1929.	1927-1928.	1928-1929.	1927-1928.	1928-1929.	1927-1928.	1928-1929.
A. Taken into Court ..	73	33	96	159	23	43	13	33	208	268
B. Compounded ..	300	117	882	918	269	282	110	107	1,561	1,424
C. Undetected ..	71	92	4	8	..	..	..	..	75	100
Total ..	444	242	982	1,085	295	325	123	140	1,844	1,792
In Reserves	91	115	586	706	295	325	99	119	1,071	1,265
In Unreserves	353	127	396	379	..	..	24	21	773	527

Compared with the previous year, there was a slight decrease in the total number of offences by about 2·82 per cent. There was however an increase under 'Reserves' by 18 per cent and decrease under 'Unreserves' by about 32 per cent.

Under 'reserves' the increase was under all heads. The increase under 'Injury to forests by fire' was chiefly in South Mangalore and Palghat divisions and is reported by the District Forest Officers to be due to prolonged hot weather in the former division and accidental fires in the latter division. The increase under 'Felling' was in South Mangalore and the Nilgiris may be due to the better detection by subordinates. The increase under 'grazing' and 'other offences' was mainly contributed by the Nilgiris and is accounted for by surprise detection carried out by a party of guards specially deputed to patrol the areas in and around Ootacamund town and in the Wenlock downs. Under 'unreserves' there was a very large drop under 'Fires' in South Mangalore division and the Tahsildar considers that the main cause must be the deterrent punishment meted out to Kumri cultivators (all fire offences in unreserves of South Kanara relate to burning of forests and waste lands for shifting cultivation mainly by the very backward class of Maratis). Kumri cultivators shift their ground rapidly and when suitable Government lands are not available they go to Patta Kumries and this also may partly account for reduction of such offences in Government unreserves. The decrease under other items is small and calls for no remarks.

The percentages of cases detected in reserves and enquired into by Range officers and District Forest Officers are as follows. (As mere percentages do not give a fair comparison the total number of cases concerned are also entered in the last column.)

	By District Forest Officer.	By Range officer.	Total cases.
	PER CENT.	PER CENT.	NO.
North Mangalore division ...	...	10	135
South Mangalore	2	22	285
Wynaad division	...	27	11
Nilambur division	20	12	35
The Nilgiris	1	10	598
Palghat	1	17	201

The offences not enquired into, are generally reported to be of such a simple nature as not to need personal enquiry. But the District Forest Officers could have done more and it is hoped they will attend to this in future.

Of the 136 cases prosecuted in courts, 59 ended in conviction and 77 in acquittal. Of the cases acquitted, 56 were settled by payment of compounding fees in courts. Hence the total percentage of successful prosecution was about 85.

The amount of compounding fees realized was Rs. 16,024 against Rs. 15,537 in the previous year. The average compounding fees realized were Rs. 11-4-0 per case and Rs. 6-4-0 per person.

Rewards.—A reward of Rs. 18 was paid to six forest subordinates in the Palghat division for detection of offences in Narasapuram reserve—a place notorious for illicit felling. A reward of Rs. 25 was paid to forest subordinates in the Nilgiris for detection of an illicit shooting case in Teppakuchi reserve.

A reward of Rs. 15 was paid by the District Superintendent of Police to a forest guard in Mangalore South who rendered valuable service in a police case.

(*b*) *Protection from fire.*

Special protection.

The period dealt with is the calendar year 1928.

Early burning—North Mangalore.—The operations were confined to the ghaut forests and the result is reported to be good. The area early-burnt was however much reduced under orders of the Conservator who considered that more was done in previous years than was necessary.

Wynaad.—Only the forests of Kannoth range were protected under this system and there were no fires.

The Nilgiris.—The early burning, on only one side, from certain existing lines mostly roads and outer boundaries was tried as prescribed by the working plan for the Mudumalai range, but the result not being satisfactory, the old system of burning lines and engaging patrols was adopted. No early burning was done in Sigur range.

The old system of protection by cleared lines and patrols prevailed in other parts of the circle, and in some places this was combined with a modified form of early burning, consisting in burning fairly wide strips (about 100 yards) on either sides of roads, paths, and such other, what may be called 'danger zones'.

The area specially protected decreased from 1,172 square miles to 1,103. The decrease was in North Mangalore and was due to not resorting to early burning in Coondapoor range for the reason noted above, and as the figure entered in the 1927 Form 31 for that division was incorrect.

The area successfully protected during the year was 99·4 per cent against 99·6 in the previous year, the area burnt being 3,825 acres against 2,981 acres in the previous year.

The average cost of special protection was Rs. 12–7–0 per square mile against Rs. 12–10–0 in the previous year.

The cost of early burning was Rs. 9–5–0 per square mile in North Mangalore division. The lowest rate, for protection under

the old method, was in Palghat division and it amounted to Rs. 13-9-0 per square mile and the highest was Rs. 25-7-0 per square mile in North Mangalore division.

General Protection.—The area under general protection was 454,350 acres, the area burnt over being 6,977 acres.

(*c*) *Protection against Cattle.*

The area closed to grazing increased from 333 to 336 square miles due to closure of the recently felled coupes and areas under regeneration. In Nilambur the entire forest area is supposed to be closed to grazing but the cattle from adjoining villages continued, as usual, to damage the young plantations and are difficult to be kept out.

The area closed to grazing of all animals was 336 square miles and which amounted to 17 per cent of the total area of reserved forests and lands. The area open to grazing of all animals except goats was 69 per cent and that open to all animals except browsers (sheep and goat) was 14 per cent.

The number of animals licensed to graze on payment was 123,392 against 117,997 in the previous year. The increase was chiefly in South Mangalore and the Nilgiris divisions. In South Mangalore it was due to a larger number of cattle brought to the Kulgunda cattle fair. In the Nilgiris it was due to a larger importation of slaughter cattle to Ootacamund through the Sigur reserve, as the disease among cattle in that locality subsided during the year.

The incidence of grazing as reckoned by District Forest Officers was—

	Acres per cow unit.	
	1928-29.	1927-28.
North Mangalore division ...	9·9	9·8
South Mangalore division ...	5·9	6·2
Wynaad division	18·0	12·0
Palghat division	6·6	6·3

It is not possible to work out the incidence in the Nilgiris for the reasons stated in the report of 1926-27.

The number of cattle impounded increased very slightly from 2,208 to 2,271.

(*d*) *Protection against injuries from natural causes.*

Weeds and climbers.—In North Mangalore division climbers were cut in the timber coupes, and creepers injuring Hopea plants in sown areas were removed during tending operations.

Lantana.—In South Mangalore division, the uprootal of lantana was carried out in Muliyar reserve fuel coupes and cutting of climbers, weeds, etc., was done in all the regeneration areas as a

preventive measure against injury. In *Wynaad* lantana was uprooted in plantations and around buildings. Burning of lantana in a test area was also carried out. Loranthus on teak trees in plantations was cut.

Insects.—In South Mangalore division an insect damaging Hopea seedlings in Mundaje Kap reserve was sent to the Forest Entomologist at Dehra Dun, and it was identified as *Xyleborus morstatti Haged* known as a borer of coffee seedlings and twigs. The remedy suggested by the Entomologist to combat this attack, is frequent inspections and the destruction of the attacked seedlings by burning or burying. Another insect which appears to do a lot of tunnelling in the boles of over-mature Hopea parviflora trees was also sent to the Forest Entomologist. As he could not yet definitely identify the insect, further investigation is being carried out by him and a piece of log containing these borers has been sent to Dehra Dun.

Damage by *Teak defoliators* in Nilambur was comparatively light. Unusual rains in November and December appears to have reduced the activities of the caterpillars. The work of mapping defoliated areas by a special duty forester and reporting observations to the Forest Entomologist was continued throughout the year.

It is worth recording, that defoliators are reported by the Forest Research Officer to have left alone teak seedlings in a one-year old experimental Research Plot in Nilambur, where the plants scarcely ceased growing throughout the hot weather and dropped but few leaves, on account of excellent soil aeration carried out twice (early in September and at end of October 1928): Whereas defoliation was going on in the surrounding areas.

In the Nilgiris, spike in sandalwood trees in Sigur, Kalhatti and Bokkapuram reserves was noticed for the first time, though from the extent to which it has already spread it is presumed that it has been going on for some time, though not noticed and reported.

Damage by animals.—In South Mangalore division the injury by wild animals continued to some extent. In Wynaad, the bison, sambhur, and elephants continued to do some damage to young plantations, and a promising young teak area in Begur range was almost wholly destroyed by pigs which took to digging up the plants for their roots. In Nilambur the damage by wild elephants is reported to be severe in parts of the young plantations of the Amarampalam range. In Palghat, the visits of wild elephants were a source of damage and cultural operations were rendered difficult thereby in Bolampatty and Walayar reserves. One unfortunate forest guard who was returning from Bolampatty tuckle area, along with some four other subordinates, was killed by a rogue elephant in January 1929.

CHAPTER III.—SILVICULTURE.

I. Afforestation and Regeneration of Forests.

(i) *General progress of areas under regeneration.*

North Mangalore.—The Hopea parviflora, etc., areas regenerated in previous years in Someshwar, Jatkatmale and Halesomeshwar reserves continue to be promising. Regeneration by coppice in fuel and catechu coupes is fair.

South Mangalore.—Much lighter tending than in previous years was done in the areas regenerated with Hopea between 1920 and 1927 in Parappa, Perkala and Padnur. All the regenerated areas are in a satisfactory condition.

An attempt was made in both Mangalore divisions, to find out if at least in earlier sown areas we can do away without such works being carried out annually. But result shows that the time has not yet come to stop freeing seedlings and as this costs very little should be continued to be done for some time longer according to actual requirements.

Wynaad.—Natural reproduction was generally poor, the undergrowth of the grass and weeds being very heavy in deciduous forests. Regeneration in evergreen sholas is reported to be satisfactory.

Nilambur.—The new teak plantations of the Plantation Working Circle (i.e. second rotation crops) are indifferently stocked, and the growth is generally below the average, though there are restricted areas of excellent growth. In the Conversion Working Circle, the new clearing in the Amarampalam range is quite well stocked, and the growth is generally good, while that in the Nilambur range is of poorer growth, though it is also fairly stocked. The 1927 Ponam plantations are poor to fair in stocking and development.

The Nilgiris.—Eucalyptus globulus coppice on the plateau continues to be eminently satisfactory. Eucalyptus eugenoides, planted in Coonoor and Ootacamund ranges last year, though not so hardy as Bluegum, is also doing well.

Palghat.—The areas regenerated in the previous years were tended and the development of coppice and young regeneration is satisfactory.

(ii) *Establishment of reproduction under working plans or schemes.*

Form 34-*A.*

Mainly natural.

Wynaad.—In felled coupes, teak of all ages was found to coppice better than any other species. Mathi and Rosewood coppiced well at the start, but their further development is reported to be poor.

Nilambur.—In an area of 17 acres in compartments 83 and 88 of Edacode (teak plantation of 1851) which contained a good natural underwood of Hopea parviflora, the entire overwood of teak was removed, leaving the Hopea underwood to form the future crop.

Natural mixed pole crops and regeneration of valuable species were thinned, cleaned and tended both in the miscellaneous felling series of the Plantation Working Circle, and in subsidiary coupe I of the Conversion Working Circle. The areas so treated amounted to 27 acres and 69 acres respectively.

Mainly artificial.

North Mangalore.—As prescribed by the scheme, catechu sowings were continued—but on a smaller scale—and the work done with cost and results is as follows :—

Series.	Area sown.	Cost.	Percentage of survivals at end of 1929 hot weather.
		RS.	PER CENT.
Coupe III, Baindur	13	86	34
Coupe III, Wandse	36	211	91
	40	229	96

All the three areas were fenced and were weeded once; the first in August and the other two in September 1928. The area sown in Baindur series was too open and rocky and hence results were poor Seeds were sown in June in prepared patches 12′ × 12′ apart.

Casualties (amounting to 47 per cent) were replaced over 75 acres of catechu coupe II of Baindur series (1926 coupe) and the area was weeded in November and December 1928 at a cost of Rs. 165. But the percentage of success at end of May 1929 was only 65. The area being a recently worked fuel coupe, the seedlings get a poor chance to develop and it has now been decided not to attempt further catechu sowings in such areas, as the luxuriant growth of coppice gives too much shade to suit the light requirements of catechu.

Palghat—Pole Working Circle—Coupe II in Varalapadi Block II—Out of 125 acres clear-felled in the previous year, only about 67 acres, where natural reproduction and coppice regrowth of good species were not sufficient, were planted with one year old teak stumps early in June 1928, the espacement adopted being 9′ × 9′. The remaining area contains good coppice growth of teak and other valuable species and hence was not planted. The growth over both planted and coppiced areas is very good. The total expenditure on 67 acres planted with stumps was Rs. 936 or Rs. 13–15–0 per acre. The remaining area not artificially regenerated, viz., 58 acres was ended at a cost of Rs. 128 or Rs. 2–3–0 per acre.

Bolampatti range.—Ponam Working Circle—Compartment 16, *Coupe III.*—An area of 25 acres felled in the previous year was given on *tuckle* to the Irulars who cleared and burnt the area by end of April 1928 and prepared bunds 12 feet apart. Subsequently the subordinates notched germinating teak seeds taken from dumps over 112 of these bunds and over the remaining 139 Neem, Albizzia lebbeck and Odoratissima, Terminalia tomentosa, and Gmelia arborea seeds were sown. The approximate area sown with teak may be about 17 and with all other species about 8 acres (as lengths of bunds vary area is not in proportion to their numbers). The Irulars weeded the bunds in July and August 1928 and again in January 1929. The total expenditure on regeneration was Rs. 112 or Rs. 4-8-0 per acre. Owing to a very prolonged break in the monsoons (between middle of June up to 17th October there was only about one week's rain), results of sowings were poor, Neem having done best of all.

The Nilgiris.—In Ootacamund range about 11 acres were planted up with bluegum in areas which originally contained Acacia or Frenela and the cost incurred was Rs. 176 or Rs. 16 per acre. The seedlings are doing well. The change of species was affected as it pays best to have bluegum plantations for fuel.

In compartment 3 of Brooklands, an area of 5 acres was planted in July 1928 with eucalyptus eugenoides seedlings at a cost of Rs. 211 or Rs. 42 per acre. The weather was rather unfavourable but the plants are doing well.

In Coonoor range, 10·50 acres of Springfield, which originally contained Acacia, were planted with eucalyptus eugenodies at a cost of Rs. 286 or Rs. 27 per acre. The plants are thriving. The cost is lower than in Ootacamund range as smaller sized pits were made and as less shading was required in the Coonoor range.

Sandal sowings.—Twenty-five acres in Burliar reserve were dibbled with sandal at a cost of Rs. 95. The success varies from 10 to 12 per cent.

In Sigur range, an area of 25 acres, where germination failed last year, was resown with sandal seeds at a cost of Rs. 84 but with no better results. Even the plants raised in a nursery as a germination test and planted out in the area died owing to lack of timely rains.

Sandal seeds put out on one acre plot to the north of Teppakadu toll-gate in Mudumalai range at a cost of Rs. 3 did not germinate. Two hundred seedlings from the nursery at Lower Kargudi were transplanted in the area, but only 86 survived at end of the year.

In the Mudumalai range, teak was regenerated under the tuckle system (the field crop being ragi) in an area of 12½ acres in compartment 4 of Cheenakolli. The work was done departmentally. Similar work done in 10 acres in 1927–28 was a failure but that taken up during the year under report yielded 63 pallas of ragi valued at Rs. 665. In 1927–28 area the surivals of teak plants at end of the first year were only 50 per cent, but after restocking in 1928–29 the percentage had increased to 80. Whereas in 1928–29 area survivals amounted to 78 per cent at end of first year.

Nilambur—Nilambur range—Plantation Working Circle.—Edacode compartments 77, 83 and 88, Moolathmanna compartment 20 (part), Ramallur compartments 26 and 27 (part) in all, 39·8 acres were regenerated during the year, 37·8 acres by planting teak seedlings 6′×6′ and 2 acres by sowing teak seeds in pits 6′×6′. The sowing was done in June, and planting between the 12th June and 3rd July. Casualties in the planted area were replaced in July-August with teak, in most places, and with Karimarudu (Terminalia tomentosa) in portions of compartment 77 where the teak originally planted did not come up owing to the swampy nature of the locality. Three weedings were carried out. The first, in August, consisted merely in cutting back the weeds, the second, in September-October, consisted of removing weeds and digging the soil with forked mamutties 2′ on either side of the plant rows. The third, in November, consisted of removing weeds with mamutties 2′ around plants below 3′ in height and mulching the plants. The cost of formation was Rs. 2,043–10–10 or Rs. 51–6–0 per acre, out of which a sum of Rs. 457–12–3 was spent in 1927–28.

The stocking is very variable, from about 90 per cent in the best bits to about 20 per cent in the worst, and on the average it is poor. In a few small areas the growth is extremely good, and testifies to the value of digging the soil just after the monsoon. With such notable exceptions, the average growth is poor. Obviously heavy casualties attended the original planting, and much of the replacement of casualties was done too late to give the plants a proper start and hence the general poor result in spite of subsequent soil aeration.

Moolathamanna	compartment	...	20
Ramallur	,,	...	27
Elenjeri	,,	...	28, 29, 38, 39, 40
Edacode	,,	...	61, 70, 82, 86, 87

in all 160·1 acres were attempted to be regenerated with teak under the Ponam system (Tuckle) in 1927. But the areas were so poorly stocked as to require almost complete re-formation and hence were again regenerated during the year, mostly with one year old

teak stumps. Planting was commenced by the middle of June, and owing to the scarcity of labour, and the large area to be dealt with, was completed only by the middle of August. Here also three weedings were carried out, more or less on lines described above.

Best results are obtained only if one succeeds in establishing teak in the very first year. But due to unorganized Ponam work, this advantage was lost in first year of formation. For this reason and also partly as planting could not be completed in proper time, the results on the whole were poor.

The expenditure incurred on the work was Rs. 4,577-15-5, of which a sum of Rs. 1,878-5-6 was spent in 1927-28 and the balance during 1928-29 (i.e., in all about Rs. 28-8-0 per acre).

Five acres in compartment 87 of Edacode where Ayini (Artocarpus hirsuta) regenerated in 1927, had mostly failed, were replanted with Ayini seedlings 6′×6′ in July at a cost of Rs. 47-9-0. Most of the plants disappeared chiefly due to heavy browsing.

Five acres in compartments 17, 18, 19, 23 of Moolathmanna 1925, where teak had failed, were regenerated with Karimarudu (Terminalia tomentosa) by dibbling seeds at stakes. The plants were freed in October and again in February-1929. The expenditure incurred was Rs. 16-5-3.

In accordance with the provisions of the revised working plan, Hopea was underplanted in portions where shade conditions were considered suitable in the following areas:—

Panangode	compartment...	130 m, 136 m.
		137 m, 138 m.
Walluvasseri	,, ...	149 m, 152 m.
Old Amarampalam	,, ...	233 m, 235 m.

The planting was done at an espacement of 9′ × 9′ in August with plants from the 1926 nursery. Ten thousand five hundred ten Hopea seedlings were planted in all (or roughly an area of 20 acres) at a cost of Rs. 108.

Conversion Working Circle—Periodic block I—Nilambur range.—53·8 acres of natural forest in Erambadam, clearfelled in 1927-28 were cleared and burnt. But owing to interruption of rains, the burning had to be delayed, and was not satisfactory. An area of 9 acres where the burning was satisfactory, was planted with teak seedlings 6′ × 6′ in the second week of July. The area was weeded and casualties replaced in July-August 1928. The heavy weed growth was cut and the plants ærated in September-October. A further weeding consisting of cutting weed growth was carried out in February 1929. The stocking is fair, but the growth, on the whole, is poor—mainly on account of late planting.

The total expenditure incurred on the area was Rs. 1,592-1-7 out of which a sum of Rs. 741-1-6 was incurred in 1927-28. The proportionate cost of the area actually regenerated during the year was Rs. 622-15-6 or Rs. 69-3-6 per acre.

Amarampalam range.—84·8 acres of natural forests in Mundacadava (New Amarampalam reserve forest) clearfelled in 1927-28 were cleared and burnt and regenerated during the year. 42·1 acres were dibbled with teak at stakes 6′ apart, 39·6 acres were planted with teak seedlings 6′ × 6′ and the balance 3·1 acres were dibbled with Karimarudu (Terminalia tomentosa) at stakes 6′ apart. Dibbling was done between the 23rd April and 19th May, while planting was done between the 9th June and 4th July 1928.

Casualties were replaced in the planted area in July, and in the dibbled area in June, July and August. The teak dibbled area was weeded 2′ around the plants in June and again in September. (The latter weeding was accompanied with soil digging.) The planted area was weeded in July, and weeded and ærated by digging with forked mamutties in September-November. The area regenerated with Karimarudu (Terminalia tomentosa) was weeded in July and December. The whole area is quite well stocked, and the growth, generally speaking, is good, more especially in the planted area which had the advantage of soil digging in four feet strips, two feet on either side of the plant rows.

The total expenditure incurred on regeneration of the area was Rs. 5,153 or Rs. 60-12-0 per acre.

Afforestation—Nil.

(iii) *Plantation and other forms of regeneration not under working plans or schemes—Form No. 34-B.*

North Mangalore.—In the 1927 regeneration area of 500 acres in Someshwar reserve, casualties were replaced in June and July 1928 with nursery and natural seedlings at a cost of Rs. 235 or As. 7-3 per acre. Percentage of success at end of 1929 hot weather was 89.

Eight and a half acres in Madibare reserve (Timber coupe II) where the percentage of survivals of 1927 sowings of Xylia was only 20 in May 1928 were resown with the same species and the plants weeded in September and October 1928 at a cost of Rs. 10. At end of May 1929, the survivals were 82 per cent. An adjoining area of two acres in the same coupe was sown with Xylia during the year at a cost of Rs. 6 and the percentage of success at end of May 1929 was 89.

South Mangalore.—The area of 21 acres in Compartment 9 of Parappa reserved forest, sown with Melia dubia and Ayini (Artocarpus hirsuta) in 1926-27, was a thorough failure except for the

few Ayini seedlings over half an acre. Hence the area was clear-felled during the year and burnt preparatory to regeneration with Teak and Acrocarpus. The amount spent was Rs. 138.

Wynaad.—There was taken up for regeneration 86 acres in Boothakkal in Begur range and 77·5 acres in Chikkanji in Chedleth range.

In Begur range, planting was done with one year teak stumps in crowbar holes, 6′ × 6′ and one foot deep and the work was completed by the middle of June 1928. The monsoon was light and was ideal for planting. The plantation promised to be good. There was some damage to the seedlings from pigs, which pulled out stumps, and chewed and threw them away. This was done when the plantation was weeded and the plants made conspicuous. Further weeding was therefore stopped and 40,500 failures were replaced in July 1928 on 63 acres. Subsequently weeding was done.

Result of enumeration in January 1929 was as follows :—

In untuckled area, 56 acres	12,056	plants survived.
South of stream (tuckled area) 16½ acres	4,749	do.
North of stream (all tuckled area) 15½ acres	10,623	do.
	27,428 or 26·3 per cent success.	

In Chedleth range, out of the 77·50 acres planted, 38 acres (western half) were planted with teak stumps from the transplanted beds in the nursery and 38½ acres (eastern half) was planted with stumps obtained from the old seed beds, i.e., seedlings not transplanted from their original beds of sowing. One acre was utilized for planting stumps early in April before the monsoons burst. The planting was done in crowbar holes and was completed by the commencement of July 1928. In August 1928, grass weeding was carried out and in September-October, soil wounding and weeding in patches was done. From enumerations, it has been found that 80 per cent of the plants have survived.

The cost of regeneration, including felling and burning of miscellaneous species, and cost of seedlings was Rs. 4,366 for 86 acres in Begur range and Rs 4,524 for 77·5 acres in Chedleth range. This works out to about Rs. 51 per acre in Begur range and Rs. 58 per acre in Chedleth range. The increase in Chedleth range is due to more imported labour employed there than in Begur range.

Palghat.—Planting of teak was carried out on the following areas in Chenat Nair reserve, to find out whether the soil and other conditions were suitable for teak, and results were quite satisfactory especially in plots 2 and 3 :—

	ACRES.
(1) Dhoni over	4
(2) Elival over	21
(3) Sappal over	5

In the blanks formed by selection felling in the evergreen forests of Silent Valley in Coupe I (*a*), 3,000 patches were sown with seeds of Acrocarpus fraxinifolius and in 400 patches Ayini (Artocarpus hirsuta) seeds were put in. The sowings were carried out between April and August 1928. During March 1929, a large quantity of Acrocarpus seeds was collected and 5,323 additional patches were dibbled. A few blanks were also planted up with one year old natural Mesua seedlings. The expenditure on the operation was only Rs. 76.

Careful records are kept to show the progress of germination and the success achieved so far is quite good. Observations show that for Acrocarpus seeds, percentage of germination at first appears to be low, but the seeds keep on germinating very slowly and some sprouted even four months after sowing. This was especially noticed in three beds in rather an exposed locality near the Neelikal serambi, where tests were made to find out the fertility of Acrocarpus seeds.

(iv) (*a*) *Tending of areas under regeneration.*

North Mangalore.—Tending, weeding, clearing low shade were carried out over 2,995 acres regenerated (mostly with Hopea) between 1920 and 1927 in Someshwar, Jatkatmale, Halesomeshwar and Baindur reserves, and the cost per acre was As. 8–9. This includes cost of replacing casualties in recently sown areas of 1927.

South Mangalore.—Tendings (very light compared to what used to be done hitherto) were carried out in the areas previously regenerated with Hopea in Parappa, Jalsur East, Porkala, Padnur and Mundaji Kap reserves. The area gone over was about 2,278 acres and the cost incurred was Rs. 652 or As. 4–6 per acre. This included an area of 189 acres in compartments I to V of Parappa which were originally abandoned as failures, but which were resown in 1927. In these patches casualties also were replaced. In addition, 23 acres in Parappa and 55 in Nerankimale sown with deciduous species were also tended at a cost of Rs. 75.

Wynaad.—The teak plantations of 1926 and 1927 in Chedleth and Begur ranges were tended and the casualties replaced and the Hopea plantations of 1923, 1924 and 1925 in Kannoth range were

also similarly dealt with. The total area gone over amounted to 756 acres. (The expenditure incurred has not been reported by the District Forest Officer.)

Tending of areas under regeneration in Plantation and Conversion Working Circles.

Nilambur.—Weeding, pruning, cutting back damaged plants and climbers, and clearing bamboo growth interfering with teak were carried out wherever necessary and in addition blanks in 1926 Old Amarampalam and Mundacadava plantations were dibbled with Karimaruda (Terminalia tomentosa). The area gone over in the Plantation Working Circle was 164 acres and the cost incurred was Rs. 194 or Rs. 1-2-11 per acre and that in the Conversion Working Circle was 510 acres costing Rs. 1,659 or Rs. 3-4-0 per acre.

The Nilgiris.—The Eucalyptus plantations in Ootacamund and Coonoor ranges were weeded and the casualties replaced at a cost of Rs. 313.

Palghat.—Weeding and climber cutting were done in the artificially regenerated area in Chenat Nair and weeding only in the teak plantations of the Walayar Pole Working Circle and Bolampatty Ponam Working Circle.

Cleaning and climber cutting were done in the Pole Working Circle in an area of 181 acres at a cost of Rs. 217. An area of 162 acres of the fuel coupes was cleaned and the cost incurred was Rs. 320. Climber cutting was done in 94 acres of the fuel coupes for Rs. 89. The Vernacular Training School did the work of cleaning and cutting in 112 acres and the subordinates did similar work over about 1,238 acres free of cost. The Vernacular Training School also cleaned 16 acres of the Singapatty fuel coupe.

(iv) (*b*) *Tending of growing stock.*

South Mangalore.—One hundred and forty-seven acres of natural Hopea regeneration area in Jalsur East were tended at a cost of Rs. 30. The advanced growth of Hopea in Kidu over 19 acres was tended at a cost of Rs. 25. Only climbers and creepers were cut in an area of 1,030 acres in coupes I and II of Nalkur, as tending given for the area in the previous year was intensive.

In Mandekole reserve the growth round ten acres of natural Hopea seedlings was cleared, creepers were cut and interfering trees were girdled at a cost of Rs. 15.

The fuel coupes of Mulliar, Narimogar, Narinkemale and Kalanjimale reserves were tended and lantana was also uprooted in all except Nerankimale, where this pest is not found. The total area dealt with was 462 acres and the amount spent, Rs. 442.

Nilambur.—Five hundred and twenty-four acres of teak plantations were thinned at a cost of Rs. 2,495 or Rs. 4–12–0 per acre. Climber and bamboo cutting and removal of loranthus and other parasites injuring teak were carried out over 844 acres at a cost of Rs. 789 or 15 annas per acre.

Natural tree seedlings were freed of weeds and climbers in Panengode 1886 and 1887 and Karimpoya 1900 teak plantations at a cost of Rs. 123.

The Nilgiris.—In coupe III of Coonoor sandal felling series tending was done over an area of 67 acres at a cost of Rs. 100 Sandal trees in coupe III of the Sigur felling series were also tended at a cost of Rs. 100, the area gone over being 216 acres.

(v) *General—Underplanting, improvement fellings, etc.*

Nilambur—Formation and tending of underwoods in teak plantations —Hopea—Karimpoya 1919 *B*: 32·4 *acres.*—Casualties were replaced in July-August with 6,950 Hopea plants from the 1926 nursery. The Hopea plants were freed and aerated in November and in March. There were 5,231 plants alive at the end of March 1929, or a success of 50 per cent.

The expenditure incurred was Rs. 129–15–6.

Karimpoya 1906 (*compartments* 286 *and* 289)—*Area*: 53 *acres.* —The casualties of Hopea were replaced by dibbling Mahogany seeds in June and planting Mahogany natural seedlings in July. The plants were weeded in August and again in November. The survivals in November were:

Hopea	...	4,030
Mahogany	...	9,078
Hardwickia	...	349
Total	...	13,457

or nearly 85 per cent. Nothing further is proposed to be done in this area.

The expenditure incurred on the year's work was Rs. 153–12–0.

Panangode 1887 (*Compartments* 139 *to* 144)—*Area*: 65·1 *acres.*— Casualties over 25·3 acres (compartments 140 and 141) were replaced by dibbling Mahogany seeds in April, and planting natural seedlings of Mahogany in July. Casualties in the balance area were replaced in July with Hopea plants from the 1926 nursery.

The expenditure incurred was Rs. 46–11–0.

Old Amarampalam 1868 (*Compartment* 225)—*Area* 5·3 *acres.*—The casualties were replaced in August with Hopea plants from the 1926 nursery at a cost of Rs. 10-6-6.

Mahogany—Panangode 1886 (*Compartment* 134)—*Area*: 10·1 *acres.*—Casualties were replaced by dibbling Mahogany seeds in April and planting natural seedlings in August. The expenditure incurred was Rs. 12-4-6.

Nellikutha 1871 (*Compartment* 247)—*Area*: 10·1 *acres.*—Casualties were replaced by dibbling Mahogany seeds in June, and planting natural seedlings in August. The expenditure was Rs. 9-8-0.

Karimpoya 1905 (*Compartment* 294)—*Area*: 12 *acres.*—Casualties were replaced by dibbling Mahogany seeds in June and planting natural seedlings in the first week of August. The plants were freed in August and November. At the end of November there were 2,434 plants alive or success of 68 per cent. The expenditure incurred was Rs. 34-7-6.

Macaranga Roxburghii and Vitex negundo.—Two hundred and twelve natural seedlings of Macaranga roxburghii were planted 9′ × 9′ in an area of bad grass in compartment 132 of Panangode 1863 in August. Of these 157 were found surviving in January 1929.

In the same compartment cuttings of Vitex negundo were planted in the first week of September at an espacement of 12′ × 12′. The cuttings all struck roots, but mostly died, as the work was done much too late.

The object of introducing these species is to kill out coarse grass in the area and to provide material for a good burn when the area is clearfelled and regenerated. The expenditure incurred on the work was Rs. 2-14-0.

Cuttings of Vitex negundo were also planted at the same espacement in the following areas of the second rotation where teak had failed, with a view to reclaim the areas for regeneration in the near future :—

			ACRES.
Arevakode 1922,	compartment	12	1·9
Do.	do.	13	1·1
Do.	do.	14	1·8
Ellenjeri 1919	do.	37	1·0
		Total ...	5·8

The work was done too late and the results are negligible. The expenditure incurred was Rs. 5-12-0.

Tephrosia candida (Boga).—Seeds were sown in furrows 6′ apart in two acres of compartment 33 Ellenjeri 1846 B in May. The germination was good, but the seedlings died as the shade was too heavy.

Seeds were sown in 0·9 acre in compartment 5 of Aravallikava 1917, in furrows 4′ apart. The sowing here was done in June. Very few seedlings came up. One hundred and nineteen were found to be surviving in November, when the area was gone over and the surviving seedlings freed of weed growth. The expenditure incurred was Rs. 12–12–6 of which Rs. 6–12–0 was spent in 1927–28.

Wynaad.—The nine acres of Ayini underplanted in 1901 teak plantation in Begur range was tended at a cost of Rs. 20.

Improvement fellings.—To assist the established Hopea regeneration in Someshwar timber coupe III were carried out over 65 acres at a cost of Rs. 130 or Rs. 2 per acre.

In *Wynaad*, 812 acres of natural forest in Sultan's Battery range were gone over and all teak trees which were overmature or badly growing and which would not develop into useful timber were felled after reserving a suitable number of teak standards. The marketable timber was sold and the stumps coppiced.

In coupe I of the New Amarampalam reserve in *Nilambur* division, poles of valuable species were cut in an area of 388 acres. Climbers on all standing trees were also removed. The expenditure on the work was Rs. 129.

In *Nilgiris*, Improvement–Selection fellings were carried out over whole of compartment 15 (area 1,568 acres) of Mudamalai range according to the prescription of the new working plan, the trees felled having been marked by Assistant Conservator Mr. Lasrado.

CHAPTER IV.—EXPLOITATION.

The sale depots at Beypore, Nanjangod and Kasaragod continued to be in charge of the Forest Utilization Officer.

Since the termination of the agency of Messrs. Howard Bros. Co., London, the overseas timber trade is now being carried on through Messrs. Peirce, Leslie & Co., Calicut who are now the shipping and sales agents for the department. During the year under report 4,900 cubic feet of selected logs of Mathi (Terminalia tomentosa) and Rosewood were made over to the Company from Wynaad and the Nilgiris for sale abroad. Of this quantity, 1,019 cubic feet were sold during the year by Messrs. Peirce, Leslie & Co. and the amount realized was Rs. 6,017. This sum is the net realizations excluding cost of delivery of logs from forest to Calicut

(which cost varies from Rs. 1-10-6 to 2 per cubic foot). The logs were sold in London, Havre and Antwerp and it is interesting to note that 57·44 cubic feet of Laurel logs (Terminalia Tomentosa) sold in London realized Rs. 1,750 or Rs. 30-11-5 per cubic foot. In addition the previous agents (Messrs. Howards) sold during 1928-29 874 cubic feet and realized Rs. 2,300.

The Saw Mills at Beypore, Parappa and Chedleth continued to work during the year, the intake being 86,090, 82,618 and 41,084 cubic feet respectively. These mills are under the control of the Chief Forest Engineer and the marketing of the sawn timber is effected by the Forest Utilization Officer. The number of sleepers supplied to the railways was considerably larger than in the previous year, when only 5,144 broad gauges and 2,640 metre gauges were supplied, whereas for 1928-29 the numbers actually passed and taken over by the railways were as follows :—

	Placed in	
	I class.	II class.
Broad gauges	17,667	719
Metre gauges	6,065	200

The following statement shows the particulars of the sleepers supplied from the several divisions of this circle.

Thus, by now every district of this circle (except the Nilgiris where there is no scope) are supplying sleepers, Palghat division having started these operations for the first time in the Evergreen Forests of the Silent Valley. In spite of the remoteness and inaccessibility of the locality (every sleeper has to be dragged down over 3,000' of very steep rough country and over a lead of about 4 or 5 miles), we have made a handsome profit on these operations without in the least deviating from strict sylvicultural safeguards.

Xylia gives the highest percentage * of rejections and this is due to the timber splitting after conversion. Besides, the Xylia trees available in Mangalore South are of poor quality and often show signs of damage by fires which are believed to have been very frequent in years before Reserves were constituted, and when Kumri cultivation (taungya) was in full swing.

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* The percentages of rejections by species for the whole circle were as follows :—

	Per cent.
Mesua	2·3
Hopea	7·6
Xylia	11·2

Name of division.	Size of sleepers.	Hopea.			Xylia.		
		Number of sleepers presented.	Number of sleepers passed.		Number of sleepers presented.	Number of sleepers passed	
			As I class.	As II class.		As I class.	As II class.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mangalore North ..	Broad gauge.	1,757	1,734	13	..	..	..
	Metre gauge.	711	697	5	..	..	..
Mangalore South	Broad gauge.	3,912	3,346	150	1,032	729	90
	Metre gauge	1,187	1,005	44	1,307	1,088	39
Wynaad	Broad gauge.	..	..	..	..	..	..
	Metre gauge.	..	..	..	..	..	..
Nilambur	Broad gauge.	..	..	..	2,329	2,090	48
	Metre gauge.	..	..	..	904	848	14
Palghat	Broad gauge.	..	..	..	..	..	..
	Metre gauge.	..	..	..	..	..	..
Total ..	Broad gauge.	5,669	5,079	163	3,361	2,819	138
	Metre gauge.	1,898	1,702	49	2,211	1,936	53

Name of division.	Mesua.			Total for all species.			
	Number of sleepers presented.	Number of sleepers passed		Number of sleepers presented.	Number of sleepers passed		Percentage of rejections.
		As I class.	As II class.		As I class.	As II class.	
	(9)	(10)	(11)	(12)	(13)	(14)	(15)
Mangalore North ..	..	..	..	1,757	1,734	13	0·7
	..	..	..	711	697	5	1·3
Mangalore South	..	..	..	4,944	4,074	240	12 7
	..	..	..	2,494	2,093	83	12·7
Wynaad	2,924	2,688	94	2,924	2,688	94	4·8
	1,498	1,404	58	1,498	1,404	58	2·4
Nilambur	..	..	..	2,329	2,090	48	8·2
	..	..	..	904	848	14	4·6
Palghat	7,526	7,101	324	7,526	7,101	324	1·4
	1,088	1,023	40	1,088	1,023	40	2·3
Total ..	10,450	9,789	418	19,840	17,667	719	5·5
	2,586	2,427	98	6,695	6,065	200	6·4

(*a*) System of Management.

(i) *Major Forest Produce.*

The different sylvicultural systems in force are described below :—

Clearfelling.—The following areas, after extraction of all saleable timber, were clearfelled for regeneration with teak.

	ACS.	
Wynaad	152	
Nilambur	233	(of which 77 acres were mature teak plantation).
Nilgiris	15	

In addition, 33·80 acres of Acacias and Frenilla plantations in the Nilgiris were clearfelled with the object of conversion of crop and replanted with Eucalyptus pillularis and globulus.

Thirty-five acres in Compartment 5 of Parappa Reserve in Mangalore South (an old teak plantation underplanted with Hopea in 1917) were clearfelled by cutting down all teak trees, in the interest of the understorey of Hopea which is to form the crop of the next rotation.

Selection fellings (*including subsidiary fellings*).—Under this system are included all fellings carried out primarily with the object of exploiting timber. The fellings consisted of removing trees of saleable species of exploitable girth limits (approximately determined and which varied according to locality and types of forests) and of trees which were not worth keeping any longer. Such fellings were carried out both in deciduous and evergreen types of forest and especially when dealing with the latter type, rigid sylvicultural safeguards were observed in the interest of regeneration.

The areas thus gone over were—

	In deciduous forest.	In evergreen forest.
	ACS.	ACS.
Mangalore North	458	243
Mangalore South	453	321
Nilambur	515	...
Wynaad	812	*
Palghat	...	485

* The area for Wynaad is not known, but approximately about 1,000 acres are said to have been gone over, mature 7 feet girth and over-mature Mesua trees felled by selection.

N.B.—In the three coupes worked in Mangalore North, the division of forests into deciduous and evergreens is not very sharp, as the growth is often very mixed up. About 25 per cent of the yield of timber is of evergreen species and it is not more merely because many evergreen species are not saleable.

Improvement fellings.—Compartment 15, area 1,568 acres, of Mudumalai in Nilgiris was gone over mainly with the idea of improving the existing stand. Yield of saleable species obtained was 35,680 cubic feet, but bulk of this timber is of very poor quality.

Thinnings.—Thinnings were carried out in Nilambur division over 525 acres of teak plantation and in some volume increment

sample plots maintained by Dehra Dun and the yield of timber and poles realized amounted to 85,531 and 7,033 cubic feet respectively, or a total of 92,564 cubic feet.

In Nilgiris 6·87 acres of Eucalyptus pillularis plantation at Snowdon were thinned and 13,000 stacked cubic feet of fuel was obtained.

Simple coppice.—This system is adopted for working fuel coupes of North and South Mangalore and in the Nilgiris and Palghat, the area gone over being 1,266 acres.

Coppice with standards.—3·50 acres in Coupe I, Muthinad in the Nilgiri division, were felled under this system, the object being to grow a few magnificent Eucalyptus globulus trees over the coppice, mainly to watch their future development. The yield was 33,120 stacked cubic feet of fuel.

Unregulated fellings.—These were confined to the extraction of sandalwood in North and South Mangalore and the Nilgiris divisions, the outturn being 1 ton in North Mangalore, 2½ tons in South Mangalore and 7 tons in the Nilgiris, and of which 4 tons in the Nilgiris were obtained from spiked dead trees.

(ii) *Minor forest produce (including bamboos).*

Miscellaneous items of produce.—The right to collect these was leased out to contractors, except in the Mudumalai Range of the Nilgiris where departmental collection of minor forest produce continued. In Nilambur bamboos on a large scale were collected departmentally for floating timber to Beypore.

Fodder grass.—In Palghat division, the Military Department harvested 65 tons of grass from Walayar and Chenat Nair Reserved Forests.

Grazing.—This was as usual controlled by the issue of permits, the revenue realized being Rs. 31,491.

(*b*) Agency of Exploitation.

(i) *Departmental Agency.*

Timber and sandalwood continued to be extracted departmentally throughout the circle, with the one exception of Mukkada teak plantation (6½ acres) in Mangalore South which was sold standing by tender and for which Rs. 16,250 were realized.

Excepting teak, all other available species of woods which are accepted by the railways were, as far as possible, converted into sleepers, as this method of exploitation is found to be the most paying. Thus the entire output of Mesua, the bulk of Hopea and a good portion of Xylia in Silent Valley of Palghat, in Wynaad,

South Kanara and Nilambur, was converted in the coupes into sleepers (19,840 Broad Guage's and 6,695 Meter Guage's) and delivered at Mangalore, Kasaragod, Tellicherry, Nilambur and Melatur Railway stations. In all about 170,000 cubic feet of logs of the above mentioned three species were sawn into sleepers.

The rest of the timber exploited was transported to sale depots (important depots being Beypore, Mysore, Nanjangode, Mangalore and Kasaragod) mostly in shape of logs, though some sawn scantlings mostly obtained from remnants of Hopea and Xylia logs sawn primarily for sleepers, were also marketed at these depots. The only important exception was in Silent Valley of Palghat which locality being inaccessible to carts, all non-sleeper species (Dichopsis elliptica, Poon and some Arocarpus and Hopea glabra) had to be converted at stump into kolmarams and chattams (sawn cart-shafts for which principal demand comes from the East Coast and the Ceded Districts) and thence transported to Olavakot depot for sale.

Of the timber converted by the districts as logs, the following quantities were supplied in 1928–29 to the saw mills run by the Forest Department :—

Division.	Situation of saw mill.	Quantity supplied to saw mills.	Depots at which Mill sawn timber was transported for sale.
		C. FT.	
Mangalore, South.	Parappa ...	88,927	Kasaragod.
Wynaad ...	Chedleth ... (Chikkenji)	34,283	Nanjangode.
Nilambur...	Beypore ...	86,520	Beypore.

In addition, two private saw mills purchased the following quantities of logs from the department :—

Kasaragod Sri Lakshmi Mills ...	36,676 c.ft.	of non-teak from Mangalore (North division).
Nilambur (Mr. L. S. Krishnan's) Mill	3,917 c.ft.	of teak from Nilambur division.

The Nilambur mill contracted to purchase 38,665 cubic feet of teak logs, but as it was not able to pay the sale amount, the contract had to be cancelled in May 1929 and so it actually took only 3,917 cubic feet though voidah was extended twice.

The only other important departmental activity worth noting is the supply from the Wynaad and Mudumalai Forests (Nilgiris) of about 5,000 cubic feet of specially selected Terminalia tomentosa

and Rosewood logs to Messrs. Pierce, Leslie & Co., at Calicut, for shipment to European markets.

Sandalwood.—As usual the stock of sandal of the North and South Mangalore divisions was sold at Mangalore, while of sandalwood obtained from the Nilgiris, the Segur Range sandal was disposed of locally and that obtained in Coonoor Range was sold at Satyamangalam depot.

Fuel.—Top ends of timber were as usual converted into fuel departmentally and sold in North Mangalore. In the Nilgiris, the departmental felling and sale of the fuel in situ continued with the exception of one compartment in Governor Shola Reserve which coupe was leased for felling.

Bamboos.—The only departmental collection of bamboos, on an extensive scale, was in Nilambur where they were wanted for floating timber.

Minor Forest Produce.—Departmental collection of the produce in the Mudumalai Range of the Nilgiris continued. In the Wynaad 6,320 canes were collected departmentally to meet a demand from Messrs. Wrenn, Bennet & Co.

Elephant tusks collected were disposed of through the Forest Utilization Officer.

(ii) *By purchasers.*

Major produce.

Timber.—This was mostly confined to removal of dead and wind-fallen trees.

In South Mangalore the teak plantation of Mukkada (about $6\frac{1}{2}$ acres) was sold to a contractor for Rs. 16,250 the total stand being estimated at 18,000 cubic feet. The refuse of timber in Parappa coupes was as usual sold to the public at Rs. 6 per cart load for teak and rosewood and at Re. 1 for other species. The revenue realized from this source was Rs. 841.

Nilambur.—The top ends of trees clearfelled in the natural forests were allowed to be worked by contractors for spokes and felloes and other small saleable materials. Some trees in the natural forest adjoining the teak plantations in the old Amarampalam Reserve of the Nilambur Range which were hampering the development of teak trees had been girdled in 1926. These were allowed to be felled and removed by a contractor. The total quantity of timber removed by purchasers was 11,334 cubic feet and the revenue realized was Rs. 2,123.

Fuel coupes.—Fuel coupes were sold standing in North and South Mangalore and in Palghat. In the Nilgiris only one fuel coupe was sold standing. There is no scope for selling any fuel in the Wynaad and Nilambur. The Badagas were allowed the usual privilege of removal of dry fuel from Reserves on permits at Re. 1 per house.

In the South Mangalore four fuel coupes, due for felling in the year, could not be sold for want of demand owing to depression in the tile trade at Mangalore still continuing.

Minor forest produce.

Bamboo coupes in South Mangalore, Wynaad and Palghat were leased out to contractors. Permits were also issued in all divisions except Palghat and Nilambur, to meet local requirements.

In the Nilgiris, three bamboo coupes due for felling as per sanctioned scheme, were not sold as two were ordered to be rested having been overworked in the previous rotation and as there was no bid for the remaining coupe owing to objections raised by the bidders to the observance of the usual conditions. Other minor forest produce was leased out as usual.

(iii) & (iv) *By right holders and free grantees.*

—	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos.		Grazing value.	Other minor forest produce, value.	Total value.
					Number.	Value.			
		Rs.		Rs.		Rs.	Rs.	Rs.	Rs.
Free grantees ..	4	580	1	68	2,025	21	949	1,838	3,456
Right-holders ..	12	5,517	..	..	..	..	..	..	5,517
Total ..	16	6,097	1	68	2,025	21	949	1,838	8,973

Outturn and sources of forest produce.

—	Timber in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos value.		Grazing and minor forest produce.	
	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.	1927-28.	1928-29.
					Rs.	Rs.	Rs.	Rs.
By Government agency.	713	942	547	511	8,444	8,917	1,965	2,144
By purchasers ..	133	161	1,562	1,266	18,564	26,129	71,164	81,029
By free grantees ..	1	4	1	1	12	21	1,812	2,787
By right-holders ..	16	12	..	..	..	..	..	..
Total ..	863	1,119	2,110	1,778	27,020	35,067	74,941	85,960

Timber.

By Government Agency.—The output in the year exceeded that of the previous year by 229,000 cubic feet. There was an increase of 133,000 cubic feet in Nilambur due to larger areas clearfelled and thinned and subsidiary fellings of Xylia undertaken as prescribed by the new Working Plan, South Mangalore, contributed to an increase of 81,000 cubic feet. This is mostly due to expansion of timber operations to provide for adequate supply to the Parappa Saw Mill (including advance fellings amounting to 37,089 cubic feet for 1929-30 supply to the Mill, in time before carting stops in rains) and also as one new series—Aletti West—was opened according to a sanctioned scheme and a trial coupe at Sampaji was worked for finding out yield, etc., for that locality. The selection fellings in Silent Valley (Palghat) started for the first time for sleeper operations, accounted for an increase of 41,000 cubic feet. In Wynaad the increase was by 12,000 cubic feet and this was due to a larger yield in the Sultans Battery Range and to Mathi and Venteak of Begur Range allotted for the previous year having been felled in the year under report. The increase in the abovesaid four divisions was partly set off by a decrease of 32,000 cubic feet in the Nilgiris, due to timber fellings being restricted to such logs as would pay the cost of exploitation and of 6,000 cubic feet in North Mangalore where the decrease was due to advance fellings in Udipi Range having been undertaken in the previous year.

Purchasers.

Reserves + 29,000 cubic feet.

Unreserves — 1,000 cubic feet.

Reserves.—The outturn shown under this chiefly represents removal of timber by fuel coupe contractors and hence figures are as a rule not accurate. Bulk of the increase (about 18,000 cubic feet) was in South Mangalore due to felling of Mukkada teak plantation. Nilambur shows an increase of 7,000 cubic feet and which is said to be due to the innovation of selling top ends and refuse of timber coupes for conversion into spokes and felloes.

Right holders — 4,000 cubic feet.

This is a varying item, based on removals from kumki lands (in South Kanara).

Fuel.

Government Agency—Reserves.—The decrease as compared with the outturn of the previous year for the whole circle amount to 36,000 cubic feet or only 6·5 per cent. The decrease was chiefly in the Nilgiris where the fellings were curtailed according to the prescriptions of the Revised Working Plan.

By purchasers.—Reserves—187,000 cubic feet or 14 per cent.
Unreserves—107,000 cubic feet or 40 per cent.

Reserves.—There was a decrease of 101,000 cubic feet in North Mangalore due to less areas of fuel coupes worked. In South Mangalore also there was a decrease of 13,000 cubic feet due to the smaller area worked and to the poor outturn. In the Nilgiris, a smaller quantity of dead wood was sold to planters. The decrease in Palghat was 68,000 cubic feet ; this is based on the contractors' figures which are not accurate.

Unreserves.—In North and South Mangalore divisions the decrease of 29,000 and 13,000 cubic feet, respectively, are ascribed to less extent of lands assigned on darkhast. In Wynaad, the amount due for fuel in unreserves having been collected in the previous year in advance, no outturn is shown for 1928-29. There was decrease in the Nilgiris by 22,000 cubic feet and the District Forest Officer explains that it is not possible to arrive at the correct figures under this head. Palghat showed an increase of 6,000 cubic feet and the yield was fixed by conversion of the money realized.

Bamboos.

Government agency (+Rs. 473).—The increase was in Nilambur where 50,941 bamboos were collected against 37,817 in the previous year.

By purchasers (+Rs. 7,565).—High prices realized for two bamboo blocks sold in Palghat account for the entire increase.

Grazing.—The number of cattle admitted to graze on payment rose from 117,997 during 1927-28 to 123,392 in the year under report. The increase has been explained in Chapter II.

Minor forest produce (including grazing value).

Government agency.—+179 calls for no remarks.

By purchasers (+Rs. 9,865).—The increase was in South Mangalore, Wynaad, Nilambur and the Nilgiris. There was an all-round increase in the amounts realized at minor forest produce sales. In Nilambur the lease amount realized on canes in the New Amarampalam reserve was an addition to the year's revenue. The improvements carried out in the Beypore coconut tope, resulted in an increase of the lease amount by about Rs. 1,000.

By Free grantees (+Rs. 975).—The increase was in the Nilgiris due to more quantity of road metal quarried by local bodies free of charge.

CHAPTER V.—FINANCIAL RESULTS.

In previous years, transactions relating to Nilambur division (which is a commercialised concern) could not be taken into account for this chapter owing to the actuals for the complete year not being received in time from the Audit Department. But this year special arrangements having been made to obtain all figures from the Accountant-General in time, all transactions relating to this division also have been included in the accounts of the year under report. The transactions pertaining to the Circle, taken independently of the revenue and expenditure transactions dealt with on behalf of Mangalore South and Wynaad divisions by Forest Utilization Officer and Forest Engineer, show a surplus of Rs. 65,090 against a deficit of Rs. 46,162 during the previous year as shown below :—

	1927-28.	1928-29.
	Rs.	Rs.
Revenue	7,73,610	9,67,800†
Refunds	2,972	1,279
	7,70,638	9,66,521
Expenditure.		
8 (*b*) Conservancy and works	3,06,769	3,90,366
52-A Do. do.	87,454*	71,760
52-A-C (ii) Regeneration	28,196†	28,289
52-A (*d*) Investments on Government Commercial undertakings	342	487
Establishments and contingencies ...	3,94,039	4,10,529
Total ...	8,16,800	9,01,431

	Rs.
Deficit	46,162
Surplus	65,090

2. The Forest Engineer is in charge of Parappa and Chedleth Saw Mills which are supplied with timber from Mangalore South and Wynaad divisions. The marketting of timber sawn at these mills (and also of some logs and sleepers supplied by the districts) is done at Kasaragod and Nanjangode Depots and which are controlled by the Forest Utilization Officer on behalf of the divisions concerned.

3. The figures of expenditure incurred and the revenue realized by Forest Engineer and Forest Utilization Officer are not however

* Includes adjustments made by the Accountant-General for the Nilambur division after the last Administration Report was compiled.

† Includes Rs. 1,326 credited in V Circle.

directly incorporated in the accounts of this Circle and hence are not included in figures furnished above. But to get a correct idea of profits made by the Circle during the year, the Forest Utilization Officer's and Forest Engineer's transactions, as far as these relate to timber supplied by divisions of this Circle, must be considered and these figures are as follows :—

	1927-28. Rs.	1928-29. Rs.
Revenue.		
Kasaragod Depot	8,011	68,360
Nanjangode Depot	69,355	1,58,306
Miscellaneous—Revenue	...	591
Total ...	77,366	2,27,257
Expenditure.		
Kasaragod Depot	16,534	13,135
Nanjangode Depot	15,637	9,714
Parappa Saw Mill	18,646	24,286
Chedleth Saw Mill	22,813	29,070
Total ...	73,630	76,205
Overheads for all Depots and Mills ...	31,047	24,027

4. As overheads represent merely the apportioning of pay of the officers concerned with the Mills and Depots, these figures are not really an item of direct expenditure, although it may be necessary to charge such items when preparing audit notes to show profit and loss of each commercial concern.

5. Thus the total figures of revenue and expenditure (excluding overheads) for the Circle from all sources for the two years are as follows :—

—	Revenue.	Expenditure.	Deficit or surplus.
1927-28.	Rs.	Rs.	Rs.
Circle actuals	7,70,638	8,16,800	— 46,162
Other agencies	77,366	73,630	3,736
Total ..	8,48,004	8,90,430	— 42,426
1928-29.			
Circle actuals	9,66,521	9,01,431	65,090
Other agencies	2,27,257	76,205	1,51,052
Total ..	11,93,778	9,77,636	2,16,142

6. It has however to be pointed out that the same system is not adopted by the Accountant-General and the Auditors in the annual adjustment of profits and recovery of indirect charges on account of the Nilambur commercial concern as can be seen from details furnished below for the last two years.

	1927-28.	1928-29.
	Rs.	Rs.
Profit from Government commercial concerns	1,32,838	2,17,670
Recoveries of indirect charges from the commercial concerns	21,827	1,06,228
Total ...	1,54,665	3,23,898

7. The amount adjusted as profit for 1927-28 was the actual profit made by the concern in the previous year (1926-27), whereas in showing profit for 1928-29 the same system has not been followed by the Audit Department and it is made up as follows :—

	Rs.
Actual profit made by the concern in 1927-28 ...	1,67,670
Portion of profit made by the concern in 1928-29 ...	50,000
Total ...	2,17,670

8. The only drawback of this lack of system of adjustments, is the difficulty experienced in correctly comparing results of the two years in question.

9. The financial position of each division of the Circle based on the *actuals shown in the accounts* for 1928-29 is furnished in the sub-joined statement.

Division.	Revenue.			Expenditure.				Surplus or deficit.
	Division.	Forest Utilization Officer.	Total.	Division including proportion for Inspector of Live Stock.	Forest Utilization Officer.	Forest Engineer.	Total	
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Mangalore, North	1,00,655	2	1,00,657	97,470	..	..	97,470	+ 3,187
Do. South	80,191	68,360	1,48,551	1,54,328	13,135	24,286	1,91,749	— 43,198
Wynaad	1,80,367	1,58,306	3,38,673	2,59,760	9,714	29,070	2,98,544	+ 40,129
The Nilgiris	1,15,181	16	1,15,197	1,36,736	..	..	1,36,736	— 21,539
Palghat	1,05,165	573	1,05,738	1,26,230	..	..	1,26,230	— 20,492
Nilambur	3,84,283	..	3,84,283	76,557	..	..	76,557	+ 3,07,726
Direction	679	..	679	50,350	..	..	50,350	— 49,671
Total ..	9,66,521	2,27,257	11,93,778	9,01,431	22,849	53,356	9,77,636	+ 2,16,142

10. *Nilambur.*—As to how the net surplus for 1928–29 for Nilambur amounting to Rs. 3,07,726 was arrived at, needs some explanation. Only the exploitation unit of this division is *a recognized commercial concern* and hence for this portion all expenditure is paid off from revenue and only the net profit of the concern is credited to District Accounts. In addition, certain sums are paid by this commercial concern by adjustments to General Forest Administration of the division. This latter unit is not a commercialised concern and hence for it both the Revenue and Expenditure charges are exhibited in our accounts.

The actual figures were as follows :—

—	..	Net surplus.	Remarks.
	Rs.	Rs.	
EXPLOITATION UNIT.			
Profits of 1927–28 credited to 1928–29 accounts	..	1,67,670	Vide paragraphs 6 and 7 above.
Part do. 1928–29 do.	..	..	
(total being Rs. 1,28,783)	..	50,000	
REGENERATION AND GENERAL ADMINISTRATION:			
Revenue—			
(1) Recovered by adjustments from the commercial concern	1,06,228		
(2) Revenue realized by district direct (mainly from plantations, thinnings, rents of buildings, etc).	60,385		
	1,66,613		
Expenditure	76,557		
		90,056	
Total ..	..	3,07,726	

The audited figures furnished by the Assistant Director of Commercial Audit show a net profit of Rs. 1,28,788 made by the concern during 1928–29 against Rs. 1,67,670 during the previous year. The results of the two years are compared below :—

	1927–28.	1928–29.
	Rs.	Rs.
Profit on Forest trading	2,857	10,916
,, hand-sawn sleeper trading	...	5,568
,, log trading, Beypore ...	1,62,648	73,707
,, sawn timber trading, Beypore	39,381	36,604
,, Olavakkot (i.e., for timber supplied to this mill from Nilambur) ...	9,268	17,981

	Rs.	Rs.
Interest received	119	1,047
Other receipts	2,921	419
Total ...	2,17,194	1,46,242
Deduct interest on capital and other miscellaneous charges ...	49,524	17,454
Net profit ...	1,67,670	1,28,788

and

of which only Rs. 50,000 have been credited to 1928–29 accounts and rest will appear in 1929–30 accounts.

Only 153,329 cubic feet of timber in logs were sold at the Beypore depot during 1928–29 at an average rate of Rs. 1–5–2 per cubic foot against 2,36,346 cubic feet in 1927–28 at Rs. 1–8–1 per cubic foot. As the detailed audit report for 1928–29 has not yet been received, it is not possible to account for the decrease in quantity and the rates during 1928–29 and which have so considerably reduced the profit for the year.

The selling rates and the costs of production for 1928–29 are noted below :—

(a) *For Logs.*

—	Cost of production at Beypore sale depot per cubic foot including overheads.	Sale rate per cubic foot at Beypore.	Quantities sold.
Logs.	Rs. A. P.	Rs. A. P.	C. Ft.
Nilambur Range—			
Plantation teak	0 8 10·97	2 5 6	39,922
Miscellaneous species from natural forests	0 8 7·06	1 0 9	* 65,963
Amarampalam Range—			
Miscellaneous species from natural forests	0 11 4·32	..	† ..
Teak thinnings	0 12 7·61	† 0 13 7	47,444
Total ..	..	..	153,329

* Includes 1,864 cubic feet of teak from natural forests sold at Rs. 2 per cubic foot.

† Selling rate is only for poles and measurables.

N.B.—Cost of production includes not only every kind of actual charges, but also all indirect charges, e.g., establishment (even including Conservator's and Chief Conservator's share), leave and pension contribution, interest, audit fees, working plan, etc.

(b) *For Sawn Timber.*

—	Cost of production per cubic feet including overheads.	Sale rate per cubic foot.	Quantities sold.	Remarks.
Handsawn sleepers. (Xylia)—	Rs. A. P.	Rs. A. P.	C. FT.	
Nilambur Range	1 1 10·8	2 7 3	7,974	
Amarampalam Range	1 3 6·2			
Beypore Millsawn timber	2 8 4·9	2 15 1	30,960	Quantity sold through the agent and expenditure figure includes his commission.
Do.	2 3 7·9	4 11 0	10,089	Work orders.
Rejects and other sales	2 3 7·9	1 1 5	4,652	..
Olavakkot Mill sawn timber (obtained from logs supplied from Nilambur)	2 4 1·10	5 4 8	3,120	By Forest Utilization Officer.
	2 4 1·10	2 14 9	1,236	By Forest Engineer.
..	2 9 4·1	3 4 1	9,891	Sold through the Agent.

N.B.—All figures are for Beypore depot except for last item.

The audited figures do not give specieswar details of timber sawn at the mills, but it was mostly teak. The total quantities sawn were 86,090 and 25,259 cubic feet at Beypore and Olavakkot Mills respectively.

Details for the costs of production are furnished below :—

(a) *For logs.*

—	Nilambur Range.		Amarampalam Range.	
	Plantation teak.	Miscellaneous species (natural forests).	Teak thinnings.	Miscellaneous species.
	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
1. Felling, conversion, dragging, carting, etc., up to riverside depots.	0 3 6·65	0 1 2·47	0 6 7·16	0 5 3·87*
2. Overheads and other miscellaneous charges.	0 2 0·63	0 2 0·63	0 2 0·63	0 2 0·63
3. Floating charges to Beypore.	0 3 3·69	0 5 3·96	0 3 11·82	0 3 11·82
Total cost of logs at Beypore per cubic foot.	0 8 10·97	0 8 7·06	0 12 7·61	0 11 4·32

* As audit notes are not yet received it is not possible to comment on differences in cost.

N.B.—Item 2.—"*Overheads and other miscellaneous charges*"—include share of Range and Divisional Establishment (Re. 0-1-1·6), share of Conservator, Chief Conservator, Working Plan and Inspector of Livestock; interest, audit fees, rents, roads and buildings share, etc., charges.

Sawn timber.

Beypore Saw Mill.

(86,090 cubic feet of logs yielded 45,281 cubic feet of sawn timber, *i.e.*, net yield 52·6 per cent.)

	RS.	A.	P.
Cost of timber to yield one cubic foot of sawn material	1	0	6·62
Handling expenses	0	0	5·03
Direct sawing charges	0	9	1·29
Depreciation	0	1	6·59
Overheads	0	3	2·37
Expenses of sale—			
Binding, etc., conveyance to Feroke	0	1	3·00
Proportion of depot expenses	0	1	8·00
Proportion of Forest Utilization Officer's overheads	0	1	11·00
Total cost per cubic foot for sales other than through the Agent	2	3	7·90
Add for commission paid on sales to Agent...	0	4	9·00
Total cost per cubic foot for sale to the Agent.	2	8	4·90

Olavakkot Saw Mill.

(For logs supplied from Nilambur.)

(25,259 cubic feet of logs gave 15,364 cubic feet of sawn timber, *i.e.*, net yield 60·8 per cent.)

	RS.	A.	P.
Cost of timber to yield one cubic foot of sawn outturn	0	14	3·75
Railway freight to Olavakkot including loading and unloading charges	0	5	5·01
Mill running expenses saw mill salaries ...	0	1	11·73
Mill running including wages and petty expenses	0	4	9·82
Depreciation	0	1	4·48
Chief Forest Engineer's supervision charges.	0	1	7·44
Interest on capital	0	1	9·87
Binding	0	0	11·00
Depot expenses	0	1	6·00
Forest Utilization Officer's overheads ...	0	2	4·00
Total cost per cubic foot for timber sold otherwise than through the Agent ...	2	4	1·10
Add for commission paid on sales to the Agent	0	5	3·00
Total cost per cubic foot for supply to the Agent	2	9	4·10

11. *Wynaad division.*—The accounts of only the Chedleth Saw Mill and the Nanjangode sale depot (controlled by the Forest Engineer and the Forest Utilization Officer) are maintained under the commercial accounting system. But as all the transactions connected with the division are taken together and an annual commercial audit is conducted, this division is dealt with here under commercial concerns.

The profits on the working of the division during 1928-29 amounted to Rs. 92,602 against Rs. 16,086 for the previous year. The chief items relating to these are shown below :—

(*a*) *Profits.*

	1927-28.	1928-29
	RS.	RS.
Export trade—		
(i) On sales through Messrs. Pierce Leslie and Company	...	3,172
(ii) On sales through Messrs. Howard Brothers and Company	...	752
(iii) Log Trading Account	67,918	1,40,494
(iv) General Forest Administration ...	2,161	...
Remittances by Messrs. Howard Brothers and Company on previous years' sales	1,331	500
Miscellaneous receipts	...	84
Total ...	71,410	1,45,002

(*b*) *Losses to be deducted.*

(1) Loss on Sawn Timber Trading Account	46,925	28,541
(2) Loss on handsawing operations in Sultan's Battery Range	...	916
(3) Loss on General Forest Administration Account	...	22,943
(4) Loss on Howard's consignments ...	5,958	...
(5) Loss due to death of a working elephant	2,441	...
Total ...	55,324	52,400
Net profit ...	16,086	92,602

N.B.—So far only audited figures have been communicated and unless audit notes are received it is not possible to make any useful comments on variations.

The costs of production and the selling rates per cubic foot during 1928–29 are shown in the statement below :—

	Cost of production per cubic foot including overheads.				Selling rates per cubic foot and the quantity sold.	
	In the forest.	At Mysore.	At Nanjangode.	At Tellicherry.	In the forest.	
					Rate.	Quantity.
Logs of—	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	C. FT.
Begur range ..	0 8 8·94	1 1 11 98	..	..	0 4 9·86	20,068
Chedleth range.	0 8 6 91	..	1 4 3 21	..	0 6 0	3,274
Sultan's Battery range.	0 8 8·30	..	0 15 2 44	..	1 6 6	14,552
Kannoth ..	0 4 0·45	..	..	..	0 6 7	74
Sawn timber ..	..	..	(*g*) 4 8 6·17	2 4 9·55	..	..

	Selling rates per cubic feet and the quantity sold— *cont.*					
	Mysore.		Nanjangode.		Tellicherry.	
	Rate.	Quantity.	Rate.	Quantity.	Rate.	Quantity.
Logs of—	RS. A. P.	C. FT.	RS. A. P.	C. FT.	RS. A. P.	C. FT.
Begur range ..	2 6 10	33,156	..	..	..	..
	(*a*) 3 0 2	5,939				
Chedleth range.	..	..	2 13 2	40,713	..	..
Sultan's Battery range.	..	..	2 13 2			
Kannoth ..	..	..	..	..	..	..
Sawn timber ..	..	..	(*b*) 3 5 6	8,092	(*e*) 2 13 0	9,084
			(*c*) 1 7 3	208	(*d*) 1 15 7	2,111
			(*f*) 2 15 7	599		

(*a*) By Forest Utilization Officer.
(*b*) Teak to the Agent.
(*c*) B. G. Sleeper.
(*d*) M. G. Sleeper.
(*e*) Miscellaneous to the Agent.
(*f*) Miscellaneous other sales.
(*g*) Excludes depot expenses and Forest Utilization Officer's overheads.

Details for costs of production are as follows :—

(*a*) For Logs

	Begur.	Chedleth.	Sultan's Battery.	Kannoth.
	RS. A. P.	RS. A. P.	RS. A. P.	RS A. P.
Felling and Conversion ..	0 1 5·93	0 1 3·90	0 1 5·29	0 0 9
Dragging	0 1 4·88	0 1 4·88	0 1 4·88	0 0 10·38
Divisional over heads ..	*0 5 10·13	0 5 10 13	0 5 10·13	0 2 5·07
Total ..	0 8 8 94	0 8 6·91	0 8 8·30	0 4 0·45

* Of this the share of the District and Range Establishment .. 0 4 1.

SAWN TIMBER.

(*b*) *Chedleth Saw Mill.*

(41,084 c.ft. of logs converted into 15, 249 c.ft. of sawn timber, *i.e.*, net yield 37·12 per cent.

	Rs.	A.	P.
Cost of timber to yield 1 c. ft. of sawn outturn.	1	9	8·60
Direct sawing charges	1	2	11·80
Depreciation	0	6	4·88
Overheads	0	9	8·59 *
Total cost per c.ft. of sawn timber at the mill.	3	12	9·87
Do Do. at Nanjangod Depot.	4	8	6·17 †

* Details of Overheads.

	Rs.	A.	P.
Chief Forest Enigeer	0	0	7 55
Forest Engineer and Central Stores	0	6	4 92
Audit fee, interest, etc.	0	2	8·12
Total ..	0	9	8·59

† Excludes depot expenses and Forest Utilization Officer's overheads as these figures have not been supplied by Auditors.

12. *South Mangalore division.*— The special agencies concerned with this division are the Forest Engineer in charge of the Saw mill at Parappa and the Forest Utilization Officer in charge of the Kasargode Depot. The accounts of only these two are brought under the commercial system. In order to obtain a correct financial result for the whole division, the figures obtained from the Assistant Director of Commercial Audit have been combined with the Divisional transactions and the totals are as follows:—

—	1927-28.		1928-29.	
	Receipts.	Expenditure.	Receipts.	Expenditure.
	Rs.	Rs.	Rs.	Rs.
As per District Accounts ..	80,708	1,26,940*	80,191	1,54,328*
Parappa Saw Mill	..	27,297	..	26,624
Kasargode depot	38,668 †	18,819	99,405†	30,556
Total ..	1,19,376	1,73,056	1,79,596	2,11,508
	Deficit. Rs. 53,680		Deficit. Rs. 31,912	

* Includes the cost of production of timber supplied to the mill, and which amounted to 64,683 and 82,618 C. ft. in 1927-28 and 1928-29, respectively.

† Represents sales as per account rendered by the Assistant Director of Commercial Audit; but full amounts were not realized during the years.

The main cause of the deficit for Mangalore South in 1928-29 was that whilst large scale fellings (including advance fellings

towards following years supply) were undertaken to supply sufficient timber to the Parappa Saw Mill, yet sales of sawn timber were poor and at the end of the year 34,806 c.ft. of mill-sawn timber valued at Rs. 66,867 remained unsold.

The average selling rate at the Kasargode Depot during 1928-29 and the cost of production are shown below :

—	Cost of production per c. ft.	Average rate of sale per c. ft.	Quantity sold.	Net profit per c. ft.
	RS. A. P.	RS. A. P.	C. FT.	RS. A. P.
Logs	0 9 3·32	0 14 6·00	8,559	0 5 2·68
Sawn Material	2 5 3·04	2 6 2·7	41,488	0 0 11·66

Particulars for the cost of production are as under :—

Logs.

	RS.	A.	P.
Felling and conversion	0	0	7·02
Dragging	0	1	7·00
Carting or rafting to Kasargode	0	4	0
Divisional Overheads	*0	1	11·1
Depot expenses	0	0	7
Forest Utilization Officer's overheads	0	0	7
Total ...	0	9	3·32

	RS.	A.	P.
* District Forest Officer	0	0	9·3
Range Establishment	0	0	4·9
Other items	0	0	8·9
Total ..	0	1	11·1

SAWN TIMBER.

Parappa Saw Mill.

(82,618 c. ft. of logs converted into 38,592 c. ft. of sawn timber, *i.e.* net yield 46·7 per cent).

	RS.	A.	P.
Cost of timber at the Saw Mill required to produce 1 c. ft. of sawn material.	0	12	3·80
Direct sawing charges	0	5	6·59
Depreciation	0	1	10·59
Overheads	*0	2	7·72
Interest on Capital	0	0	11·56
Carting sawn timber from Parappa to Kasargode.	0	6	3·08
Depot expenses	0	1	8·90
Carting of sawn timber to Railway Station and load in trucks.	0	0	6·00

* See page 242.

	Rs.	A.	P.
Forest Utilization Officer's overheads	0	1	5·30
Commission to agent	0	3	11·50
Total ...	2	5	3·04

	Rs.	A.	P.
* Forest Engineer and Central Stores ..	0	2	2·72
Chief Forest Engineer	0	0	3·00
Audit fee, leave and pension..	0	0	2·00
Total ..	0	2	7·72

4,314 B.G. and 2,176 M.G. Sleepers relating to the division were passed during the year against 1,622 B.G. and 1,067 M.G. Sleepers in the previous year.

13. *The Nilgiris.*—Rs. 21,539.

This Division, consisting largely of protective forests, is generally worked at a loss.

14. *Palghat.*—Rs. 20,492.

The apparent deficit was due to—

(*a*) Charging to this division the entire cost amounting to Rs. 8,822 of running the Circle Vernacular Training School, as it was located in this Division.

(*b*) To a large outlay on sleeper operations newly started during the year in the Silent Valley; the revenue for sleepers produced (amounting to Rs. 46,000) will as usual be credited by the Railways only in the following year. But for this system of deferred payments, the division would have shown a handsome surplus.

15. *Direction—Rs.* 49,671.

The expenditure of Rs. 50,350 includes a sum of Rs. 1,927 being the proportion of pay and travelling allowance of the Inspector of livestock and his establishment which ought to be really debited to other circles, as this officer looks after livestock of the whole Presidency.

16. Taking the Circle figures alone for the year there was an increase in Revenue by Rs. 1,95,883 and in expenditure by Rs. 84,631 as compared with the actuals of the previous year.

The following are the principal variations as compared with the figures for 1927-28.

17. *Revenue.*

VIII (a). Timber and other produce removed by Government Agency.

	Rs.
Sandalwood	— 8,182

The decrease was due to less quantity extracted in North Mangalore owing to the stock of sandal trees in the unreserves and

kumkies having been almost exhausted. In the Nilgiris, only about 7 tons of sandalwood were sold during the year against 11 in the previous year.

	Rs.
Timber	— 9,077

Based merely on the revenue directly credited to Circle accounts, there was a decrease under timber in 1928–29 amounting to Rs. 9,077. But it is not possible to draw any effective comparison for two years between revenue based on Circle figures alone. Because a good deal of the timber exploited by the divisions is supplied to the Saw Mills and finally disposed off by the Forest Utilization Officer and revenue for which is credited to his accounts. Hence unless all accounts of the Circle, Forest Utilization Officer and Forest Engineer are taken together, it is impossible to give actual differences for two years, as for 1927–28 all these accounts were not dealt with together.

	Rs.
Firewood and Charcoal	—7,406

Practically the entire decrease was accounted for by the Nilgiris and was due to less quantity of firewood extracted for sale in Ootacamund and Coonoor Ranges in accordance with the prescriptions of the revised working plan.

VIII (b). Timber and other forest produce removed by consumers and purchasers.

	Rs.
Forest department	19,529

The sale of the standing crop of the Mukkada teak plantation in South Mangalore (for Rs. 16,100), the high prices realized for bamboo blocks in Palghat and the favourable rates obtained as the minor forest produce sales in general, contribute to the increased revenue. There was a decrease of Rs. 6,839 in North Mangalore due to less number of fuel coupes sold owing to lack of demand.

	Rs.
VIII (d) Profits from Government Commercial concerns	84,832
VIII (g) Recoveries of indirect charges from Government Commercial undertakings ...	84,401

The above two items relate to Nilambur and depend on the adjustments effected by the Accountant-General, as has been explained above in paragraph 6.

	Rs.
VIII (e) Miscellaneous	+ 26,894

The increase in revenue was chiefly due to—

(1) A larger amount of revenue realized by sale of elephants, viz., Rs. 27,250 against Rs. 22,000 in the previous year.

(2) Recovery of rent on buildings of the Nilambur division used by the Exploitation Unit (Nilambur Commercial concern) for two years 1927–28 and 1928–29 and recovery of half the rent actually collected by the exploitation unit from the occupants of the residential buildings. These items contributed an increase of Rs. 14,941.

18. *Expenditure.*

	Rs.
Ordinary	+ 83,597

The important variations were under 'timber' (+Rs. 89,918), 'firewood and charcoal' (—Rs. 3,919), 'feed and keep of cattle' (+Rs. 3,654), 'roads and bridges' (—Rs. 4,132) and 'regeneration' (—Rs. 3,001).

The increase under 'timber' was largely accounted for by starting for the first time of large scale sleeper operations in the Silent Valley in Palghat and which accounts for an increase of just Rs. 45,000. The remaining increase was in Wynaad (Rs. 21,700) and Mangalore South (Rs. 25,000) and in both these cases the increase was due to expansion of timber operations. The decrease under 'firewood and charcoal' was due to less quantity of fuel felled in the Nilgiris. The increase under 'feed and keep of livestock' was due to the transfer of 5 working elephants from the Nilambur Exploitation Unit to other divisions of the circle. The expenses on maintenance of elephants in the Exploitation Unit are borne by the concern itself and are not included in the circle expenditure under 'feed and keep of cattle'. Thus the effect of the transfer was increased expenditure for the circle under the head. The requirements of the year involved a less amount of expenditure on roads and bridges.

The decrease under 'regeneration' was due to no Hopea sowings being undertaken in North Mangalore (whereas in the previous year 500 acres in Someshwar were regenerated), and as tending operations in South Mangalore were undertaken only on a limited scale.

In Wynaad, there was an increase of Rs. 3,042 due to larger area of the plantations tended.

	Rs.
Capital expenditure	— 15,601

The chief variations were 'under purchase of livestock' (— Rs. 2,897), 'roads and bridges' (— Rs. 4,422), 'buildings' (— Rs. 6,837) and 'demarcation' (— Rs. 1,315). The larger expenditure under 'purchase of livestock' during the previous year was due to the purchase of 23 Dharwar buffaloes. The decrease under 'roads' was mainly in Palghat where special expenditure for construction of inspection paths to open up the inaccessible Attapady Reserve

had to be incurred in the previous year. In South Mangalore also there was decrease on 'roads' as only one expensive item, viz., completion of Aletti road at a cost of Rs. 4,663 was undertaken during the year against two such items costing Rs. 6,904 in the previous year. Under 'buildings' the decrease was chiefly in the Wynaad where a Public Works Department building was transferred to the Forest Department at a cost of Rs. 10,000 during the previous year. In Palghat, no new rest-houses or bungalows were constructed, as in the previous year. There was, however, an increase in North Mangalore due to the construction of quarters for the range clerk and peon of the Sankernaraina Range and a double guards shed at Andar. Nilambur also shows an increase, due to the part construction at a cost of Rs. 3,230 of Extra Assistant Conservator's bungalow.

Under 'demarcation' no expenditure was found necessary in South Mangalore as in the previous year.

Establishments under 8 C (i) District Establishments and 52 A C (ii) Regeneration ... ... +Rs. 16,583

The increase occurred under 'Pay of Officers — Voted' (+Rs. 8,414), 'Pay of Establishments—Voted' (+ Rs. 3,055), Travelling allowance of officers and establishment (+ Rs. 12,425), and cost of passage (+Rs. 3,697), paid to an Imperial Forest Officer. There was decrease under 'Pay of Officers—Non-voted' by Rs. 6,968.

The increase in Pay of Officers and Establishment was with reference to increased rates of pay, special pay and leave allowances drawn by the several officers during the year. A larger amount under Travelling Allowance on transfer had to be paid to officers and subordinate staff consequent on the several transfers and additional posting during the year. The decrease under 'Pay of Officers—Non-voted' was due to the posting of officers drawing less pay.

19. The outstandings of revenue at the close of the year in connexion with the sales amounted to Rs. 1,73,339 of which Rs. 24,027 fell due before the 31st March 1929. In addition, revenue to the extent of Rs. 1,09,094 was outstanding on account of sales at the Kasargode and Nanjangode depots in charge of the Forest Utilization Officer.

20. Of the revenue realized in this circle, 82 *per cent* was from 'major produce', 8 from 'minor produce' and 10 from other sources. Of the expenditure 58 *per cent* relates to Exploitation, 22 to 'Improvement and upkeep of forests' and 20 *per cent* to miscellaneous items.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

The sylvicultural research work is conducted by the Forest Research Officer under the control of Working Plans Conservator, the research plots being located in all the divisions of this circle.

The following works were conducted by the divisional staff.

South Kanara.—As a result of collection of reliable data for Hopea bark and the opinion expressed by the Leather Trades Institute, Madras (referred to in last year's report) a contract has been entered into by Messrs. Gordon, Woodroffe & Co., Madras, to purchase from Mangalore North and South divisions large quantities of Hopea bark for two years. This bark is collected departmentally from Hopea trees felled in annual coupes and bark which till now used to be wasted, is now sold at a fair margin of profit. The firm is willing to buy all that we can thus give them. Hence it may be affirmed that Hopea bark has been established as a good material for tanning leather.

Wynaad.—One acre in 1928 regeneration area in Begur range was planted with teak stumps in April 1928 to see the result of very early planting. It proved a failure for want of rains immediately after planting. But one more acre planted at the same time in Chedleth range proved very successful as there were a few showers in April 1928.

In 1928 regeneration area of Begur range, two acres were sown with Boga (*Tephrosia candida*) seeds between lines of teak, to see if Boga would keep down the weeds. Germination was poor and the result proved very disappointing.

An experiment over 40 acres in Begur range to see if lantana could be destroyed by burning proved a complete failure. Roots remained undamaged and lantana is reported to have come up stronger and denser than before.

Nilambur—(Tephrosia candida).—Boga seeds were sown in May 1928 in a 5-acre plot in 1926 teak regeneration area at Mundacadava. The germination was good and the plants came up so well that they flowered in September 1928 and were so tall that they had to be pruned in October 1928 to save teak from suppression. Thereafter the Boga has had to be cut back twice as it continued to overtop the teak.

Experiments made in Nilambur division, both by the Forest Research Officer and the District Forest Officer, have shown that Boga cannot be introduced in the first year with teak, as it grows faster than ordinary weeds and is inclined to damage young teak plants partly by shading them and partly by setting up root competition. In Travancore (whence we got the idea of introducing Boga) it is sown in the year following teak regeneration, and its

function is purely to improve the soil, Boga being a leguminose plant. This is being done now and result will appear in future reports.

Palghat.—Trials were also made in Palghat and Wynaad to introduce Coffee robusta as a cover crop, but seeds failed to germinate.

In the Palghat nursery, experiments were tried at Dhoni with seeds of Ceylon Satinwood and Andaman Padauk. Similarly nursery experiment for evergreens was started in Silent Valley near Neelikal. Results are being watched.

CHAPTER VII.—ADMINISTRATION.

Mr. A. A. F. Minchin, Conservator of Forests, held charge of the circle from 1st April 1928 to 4th August 1928, and Mr. F. R. Madan, for the rest of the year under report.

Tours.—His Excellency the Governor, accompanied by Her Excellency Lady Goschen, visited the saw mill and the forests near Chedleth of Wynaad division on 8th October 1928.

The Chief Conservator visited portions of Wynaad, Palghat and the Nilgiris divisions.

The Conservator spent 185 days in camp touring in all divisions and inspection notes were written on the forests of Palghat division.

All the District Forest Officers, except South Mangalore alone, spent more than the prescribed minimum period in camp. The short touring of District Forest Officer, South Mangalore (Mr. Darrington), by thirteen days is due to illness in his family and also due to shortage of travelling allowance allotment.

Inspection of district and range offices and sale depots.—The Conservator inspected all the District Forest Offices and the District Forest Officers, all the Range Offices in their divisions. The following are the only sale depots in the circle.—Mysore, Hangarkatte, Coondapur, Sowda, and Mangalore—and all of them were inspected by the District Forest Officers concerned.

District Forest Officers' accounts inspection.—The Accountant-General's staff inspected, during the year, the accounts of all the forest divisions excepting Nilambur and Palghat, and the results were satisfactory. The accounts of Palghat were inspected after the close of the year, in April 1929.

As regards Nilambur division, which is under commercial accounting, the Assistant Director of Commercial Audit conducts a quarterly audit. The Assistant Director also audited the Wynaad division accounts and prepared a balance sheet in the commercial form.

Vernacular Training School.—The fifth session of the Vernacular Training School was held in the Palghat division from 1st May 1928 to 31st October 1928. Ranger M.R.Ry. A. Siddhan Pillai was the Senior Instructor till end of September 1928 when due to his going on sick leave, the charge of the school was given to Range Officer, Palghat range, M.R.Ry. A. Rama Hebbar. M.R.Ry. P. Sankunni Nayar was the Junior Instructor for the whole period. The session started and closed with 29 students (2 foresters and 27 forest guards). All the students were awarded certificates, 12 were placed in first and 17 in second class. The health of the students was on the whole satisfactory and discipline was good.

Health of establishment and Sanitation.—The health of establishment was, as usual, bad especially in Wynaad and in portions of Palghat.

Casualties.—In *Wynaad* one forester and one guard died of pneumonia.

In *Nilambur* one forest guard died of snake-bite.

In *Palghat* one forest guard was killed by a wild elephant in January 1929.

CHAPTER VIII.—GENERAL.

(i) Formation and Management of Panchayats.

(To include the Forest Village System.)

The management of three reserves (viz., Tenkahola, Todar and Hosabettu) by panchayats under the Forest Village System was continued in North Mangalore division, and these have been reported to have worked satisfactorily.

In Mangalore South, of the two forest village panchayats already in existence for Balleri and Porkala reserves, the management by the Balleri Panchayat was not satisfactory. In addition, the villagers were not at all keen on its continuance and hence it was dissolved (vide Chief Conservator's Proceedings No. 368, Routine, dated 4th October 1928). The other panchayat is reported to have continued to work satisfactorily, mainly due to the keenness of the President Rev. D'Souza.

(ii) Measure for improving local supplies and facilities.

The special concessions granted to the ryots of South Kanara were continued and it is regrettable that in spite of warnings, there is scarcely much improvement in the attitude of villagers, and instances of abuses are frequent.

In North and South Mangalore the maximum rates which might be charged by the departmental coupe contractors for sale of forest

produce to the public for bona-fide domestic and agricultural purposes were fixed by the Conservator and published in the District Gazette. In South Kanara logs and scantlings of different sizes were, as usual, sold in retail at fixed rates at the sale depots of Mangalore, Coondapoor and Hangarkatte.

In Nilambur all the major produce is extracted departmentally.

In Wynaad the local demand is, in general, met from the extensive private forests and unreserved lands.

In the Nilgiris the demand of the ryots and planters, for small timber, fuel and bamboo was, as usual, met under the permit system. The Badagas on the plateau continued to get their annual supply of firewood from shola forests on an annual permit costing one rupee per house.

As regards improving the water-supply in grazing ground, no special steps were considered necessary owing to copious rainfall in the Circle. But there are a large number of instances where ryots have been allowed to use for cultivation, water from jungle streams and for which merely a nominal fee is charged.

(iii) Timber and Sandalwood Transit Rules.

Timber transit rules.—These are in force in all divisions except the Nilgiris, and are reported to have worked satisfactorily. The revision of the rules for the Palghat Forest division is still under correspondence with the Chief Conservator.

Sandalwood transit rules are in force only in North and South Mangalore divisions and these are reported to have worked satisfactorily.

(iv) Jungle Tribes.

North Mangalore.—The 'Kudubies', the only jungle tribe in these parts, get some employment in the forests on works connected with fire protection and manufacture of cutch (Catechu).

South Mangalore.—The Marattis and Malekudis continue to practise shifting cultivation (kumri) in unreserves of Kasaragode taluk by cutting and burning forest growth. Attempts are reported to be made by the Labour department to get them to take to more settled and improved methods of cultivation.

Wynaad.—The policy of assigning lands to Kurumbars free of assessment, for cultivation with a view to settling them in the forest for procuring labour for departmental works was continued. They were also allowed free grazing and some were granted advances for purchase of cattle for cultivation of lands assigned to them.

The Nilgiris.—Several Kurumbars in Mudumalai range are employed as elephant men. These and Chetti ryots living within

the forests have been granted lands free or on paltry fees for cultivation on condition that they should supply labour to the department. In Sigur Range the Kasubas were continued to be encouraged to settle in Anaikatti by giving them free lands for cultivation In Coonoor Range the Irulars and Kurumbars were employed in the extraction of sandalwood and in clearing the district boundary. They are also encouraged to settle in the forests by giving lands free for cultivation.

Palghat.—There are now 17 Mulsar settlements in Bolampatty and Mannarghat Ranges. These people live by cultivating lands assigned to them by the Forest department free of assessment. Recently the District Board has claimed cess for even these lands and the question of paying land cess by the Forest department is under correspondence.

The Irulars in the Bolampatty Valley are allowed to cultivate Tuckles within our regeneration areas and this arrangement is working well, and the people are contented.

(v) Mining and Quarrying.

Nil.

(vi) Livestock.

Elephants.—There were 83 elephants at the beginning of the year, 24 were captured and 7 were born in captivity, making a total of 114.

The casualties during the year were as follows:—

Four (3 new captures and 1 calf born in captivity) died of the following causes. One died, partly of injuries received in its struggles to escape from the kraal and partly due to a gangrene in its tail which the animal would not allow to be treated. One died of diarrhœa. One died of anæmia. One died of premature birth.

One capture bolted away from Wynaad and could not be recaptured, though it was last traced on the Bhavani in Salem district.

Seventeen elephants were sold for Rs. 28,250. The number at the end of the year was 92.

Other animals.—There were 12 bullocks and 42 buffaloes at the beginning of the year. Of which 3 of each were sold; 1 bull and 2 buffaloes died. The balance at the end of the year was therefore 8 bullocks and 37 buffaloes and 4 asses.

(vii) Veterinary Establishment.

There were, as before, two Assistant Veterinary Inspectors—one for Nilambur and a second for live-stock of Wynaad and

Nilgiris. The work of these two Assistants was supervised by the Inspector of Livestock who in addition attended to the animals of the South Kanara districts of this Circle.

(viii) Civil Suits.

South Mangalore.—The amount outstanding against sawing contractor K. Velu Nair referred to in the last report, was written off by Chief Conservator in No. 7878-28, dated 28th February 1929, and the case against him was withdrawn on the advice of the Collector.

Nilambur.—The appeal by the Uralan of Trikalayur Devaswam, referred to in the last report, has been disposed of by the High Court. The only modification in appeal was an order to the District Court to decide the amount to be recovered from the Nilambur Tirumalpad to whom the amount as originally decided by the District Court, was already paid.

The decree obtained against the Uralan referred to in the previous report still remains unexecuted and the matter is in the hands of the Collector. The appeal preferred to the District Court by Mr. Ramu Pattar against the decision of the District Munsif, Manjeri, referred to in the last report was dismissed with costs.

The suit filed by the department against Naduvath Manakkal Subramanian Nambudripad of Wandur (lessor of Chathamborai forest) for the recovery of Rs. 1,475 was decreed in favour of Government. The Collector is reported to be taking steps to execute the decree.

Annexure.

North Mangalore Division.

Description.—The division consists of the northern portion of the South Kanara district. The important forests cover the western slopes and the Terai of Western Ghats up to the Mysore Frontier On the Ghat slopes the 'Kumri' cultivation and permit system of the past has been responsible for the disappearance of most of the merchantable timber. The heaviest stand of timber is now found along the Ghat between 1,500 and 2,000 feet level. The forests on the Ghat slopes are both evergreen and deciduous and some of the trees, notably Poonspar (Calophyllum elatum) and Kiralbhogi (Hopea parviflora) attain immense sizes. As we approach the coast, the quality of the forests deteriorates as the rainfall decreases and population and cultivation increase. The outlying hills near the coast are fuel forests. Acacia Sundra is a special feature of the division. It is confined to the laterite hilly plateau between the Sea and the Ghats in Coondapoor taluk.

2. *Area of reserved forests and lands.*—Three hundred and fifty-nine square miles.

3. *How the forest district is split up into subordinate administrative charges.*—

Name of range.	Number of beats.
1. Coondapoor	18
2. Shankaranaraina	10
3. Udipi	14
4. Mangalore	8
Total ...	50

To help the four Rangers in execution of works and for protection of reserves there is a staff of 14 Foresters and 73 Forest Guards and Watchers. One additional Ranger was employed for greater portion of the year for stock-mapping reserves.

4. *Cost of administration*—

	Rs.
District Forest Officer	9,692
Forest Rangers	12,245
Subordinate staff	21,047
Clerical and menial staff	8,554
Miscellaneous including contingencies	1,818
Total ...	53,356

5. *Cost under other important heads*—

Timber operations	23,788
Firewood	250
Sandalwood	207
Feed and keep of livestock	5,098
Regeneration	2,693
Protection from fire	2,332
New Works—Buildings	3,496
Do. Wells	322
Other Miscellaneous items	5,625
Total ...	43,811

6. *Income from main sources*—

	From reserves.
Timber	41,496
Firewood	14,315
Grazing	5,469
Other minor produce	9,570
Miscellaneous revenue	10,421
	81,271
Deduct—Refunds	137
Total ...	81,134

		Rs.
	From unreserves.	
Timber		8,298
Firewood		8,229
Sandalwood		1,772
Bamboos		21
Other minor produce		1,201
	Total	19,521

7. *Chief works done in the division.*—The principal items of works carried out were, exploitation of timber in three centres amounting to 57,322 cubic feet to supply sleepers to the railways and timber to the coast markets; sandalwood extraction ($1\frac{1}{8}$ tons), construction of buildings, artificial regeneration (Hopea and Acacia Catechu) and fire-protection. In addition stock maps for six reserves were prepared to collect data for preparing a scheme of exploitation and regeneration.

SOUTH MANGALORE DIVISION.

Description.—The division extends from near Kudremukh Hill (the highest point in the Western Ghauts of South Kanara) on the north, to Malabar on the south, the Arabian Sea on the west and up to Coorg and Mysore on the east. It covers the slopes of the Western Ghauts and their foot hills drained by the Netravati, Kumardhari, Chandragiri and Nileshwar rivers. The highest peak, Kudremukh, is 6,200 feet above sea level.

The lower slopes of the Ghauts and the foot hills are clothed with dense evergreen and semi-evergreen forests containing magnificent trees but majority of which are of unsaleable species, the principal useful species being Hopea, Poonspar, Terminalia tomentosa, Terminalia paniculata, Xylia and also some scattered White Cedar and Wild Jack. Trees up to 150 feet in height and 15 feet in girth are not uncommon. Ebony, Red Cedar and Acrocarpus also occur to a very limited extent in some localities. Five varieties of canes are found in evergreen belts and of which the Naga (Cobra) cane is the most sought after. Bamboos and reeds occur in plenty. There are three cardamom estates on steep upper slopes of the Ghauts.

Next to the semi-evergreen is the deciduous zone which yields fairly large quantities of timber and fuel. The principal species of these forests are Teak, Xylia, Terminalias, Rosewood, Benteak, Benga and Albizzias. A small quantity of sandalwood is found but practically the whole of it occur in unreserves and in kumki lands.

The rainfall is very copious and in Nalkur at foot of the Ghauts even 195 inches have been recorded in a single year.

2. *Area of reserved forests and lands.*—Four hundred and forty-four square miles.

3. *How the forest district is divided into subordinate administrative charges.*—

	Name of range.	Number of beats.
1.	Puttur	14
2	Kasaragod	14
3.	Uppinangadi	9
4.	Beltangadi	6
		43

A staff of 14 foresters and 62 forest guards and watchers is employed to help the 4 rangers in execution of works and for protection of reserves. A special duty ranger was solely in charge of the construction of an important road and exploitation in Alteti West reserve (Kasaragod range).

4. *Cost of administration.*—

	Rs.
District Forest Officer and Assistant Conservators	20,902
Rangers	12,973
Subordinate and protective staff ...	18,727
Clerical and menial staff ...	8,853
Miscellaneous including contingencies	3,270
	64,725

5. *Cost under other important head.*—

Extraction of Timber	57,365
Feed and keep of Livestock ...	13,035
Sowing and planting	1,243
Protection from fire	2,062
Roads—New works	5,993
Buildings—New works	3,693
Other miscellaneous items	5,415
Net ...	88,806

6. *Income from main sources*—

From reserves.

Timber	36,902	(By this division.)
	70,620	Credited in Forest Utilization Division.
Firewood	1,479	
Bamboos	352	
Grazing	9,863	
Minor produce	5,514	
Other miscellaneous items ...	11,370	
	1,36,100	
Deduct—Refunds	930	
	1,35,170	

From unreserves.

Sandalwood	3,492
Timber	6,036
Firewood	896
Other minor produce	5,197
Bamboos	19
	15,640

7. *Chief works done in the division.*—The principal activities of the division were the extraction of about 204,000 cubic feet of timber (for supply to the Parappa saw mill, for railway sleepers and for coast market) and upkeep of Hopea regeneration areas (about 5,000 acres). About 2½ tons of sandalwood was also extracted. A Working Plans Officer was engaged throughout the year in stock-mapping, enumerating and collecting other data for preparation of a regular working plan for the whole division.

Wynaad Division.

Description.—The Wynaad Forest Division covers the northern strip of Malabar from the Nilgiris district on the east to Tellicherry on the west and borders Coorg and Mysore on the north. On the Western Ghauts their slopes (both east and west) and foot hills is good evergreen tropical jungle On the coastal plain immediately west of the Ghauts is semi-evergreen and deciduous forests of fair quality. On the Wynaad plateau, east of the Ghauts, is good deciduous forests, gradually deteriorating towards the east to the borders of the Nilgiris where the forest is rather stunted with large expanses of tall and dense elephant grass. The rainfall varies from 182 inches at Makki on the Ghauts to 51 inches at Boothakal in Begur range and near the Coorg border.

The elevation of the plateau is a little under 3,000 feet on the average. It is hilly with occasional hills rising to over 5,000 feet. The forests of the Ghauts and the Wynaad plateau are very malarious.

2. *Area of reserved forests and lands.*—Two hundred and sixty-three square miles.

3. *How the forest district is divided into subordinate administrative charges.*—

Name of range.	Number of beats.
1. Kennoth	5
2. Begur	8
3. Chedleth	...
4. Soultans' Battery	...
	13

Although there are only four ranges, yet on account of extensive timber and regeneration works and to make allowance for frequent illness, an additional staff of three or even four rangers has to be employed according to necessity. These rangers are helped by a staff of 15 foresters and 56 forest guards and watchers. Chedleth and Sultan's Battery ranges are not divided into beats for protective purposes, as due to their very remote situation little protection is required.

4. *Cost of administration*—

	Rs.
District Forest Officer and his assistant	22,923
Rangers	28,409
Subordinate protective staff	21,473
Clerical and menial staff	15,414
Assistant Veterinary Inspector and staff	3,855
Miscellaneous including contingencies	3,469
	95,543

5. *Cost under other important heads—*

	Rs.
Extraction of timber	87,004
Feed and keep of livestock	32,083
Sowing and planting	14,112
Protection from fire	1,307
Purchase of livestock (elephant-capturing operations).	4,206
Buildings—New works	4,025
Roads—New works	1,637
Other miscellaneous items	18,042
	1,62,416

6. *Income from main sources—*

From reserves.

	Rs.	
Timber	1,38,194	(By this division.)
	1,59,201	(By the Forest Utilization Officer.)
Bamboos	1,855	
Grazing	4,496	
Other minor forest produce ...	6,605	
Other miscellaneous items ...	29,939	
	3,40,290	
Deduct—Refunds	131	
	3,40,159	

From unreserves.

Timber	3,102
Firewood	1
Other minor produce	305
	3,408

7. *Chief works done in the division.*—One hundred and eighty-seven thousand eight hundred and fifty-four cubic feet of timber were felled, converted and transported to Mysore Depot for sale, for supply to the mill at Chedleth and for the supply of sleepers. One hundred and sixty-four acres of new plantations were regenerated and 767 acres of plantations tended. Elephant-capturing operations were conducted at a cost of Rs. 2,504 and resulted in the department capturing nine elephants (of which six were young calves).

Nilambur Division.

Description.—The Nilambur Forest Division lies in the water-shed of three rivers, the Chaliarpuzha, the Karumpuzha and the Punnapuzha, and their tributaries. The three join near Nilambur, and the main river thus formed is known as the Chaliar. It forms the principal means of export for

the Nilambur timber, most of which is floated down to Beypore on the coast for sale. The bulk of the area of the division is in a compact block, situated on the outer slopes and foot hills of the Kundah range of the Nilgiris, from 8,200 feet down to 120 feet elevation. The remainder consists of scattered blocks in the plains (mostly held by Government on lease) and it is these blocks which contain most of the famous Nilambur teak plantations. These plantations cover an area of about 10 square miles and are all situated close to the main rivers.

The natural forest are of the mixed semi-deciduous type up to an elevation of about 3,000 feet. Between 3,000 and 6,000 feet the forests are mostly evergreen. Above 6,000 feet tree growth is scattered and stunted, and most of the vegetation consists of grass only. Of the natural forests, the semi-deciduous type is the more valuable both from the point of view of superiority of species in the timber market and by reason of accessibility for extraction. The finest growth in this type of forest is in the foot hills and up to about 2,500 feet on the slopes. Only the lower portions of the semi deciduous forests are being worked at present, though a project for extending exploitation to higher elevations is under consideration.

2. *Area of reserved forests and lands.*—One hundred and twenty-six square miles.

3. *How the forest district is split up into subordinate administrative charges.*—

Name of range.	Number of beats.
1. Nilambur	4
2. Amarampalam	1
	5

To help the two territorial rangers in extensive timber and regeneration operations there are always two or three assistant or special duty rangers. In addition, there are 18 foresters and 37 forest guards and watchers.

4. *Cost of administration*—

	Rs.
District Forest Officer and his assistant	17,200
Rangers and Assistant Veterinary Inspector ...	12,800
Subordinate protective staff	15,600
Clerical and menial staff	10,000
Miscellaneous including contingencies	507
	57,107

5. *Cost under other important heads*—

Timber operations	1,73,600
Bamboos	16,600
Feed and keep of livestock	42,200
Sowing and planting	18,700
Fire-protections	1,001
Miscellaneous items	163
	2,52,264

6. *Income from main sources—*

	Rs.
Timber (revenue realized both by District and through Forest Utilization Officer)	4,44,500
Bamboos	10,700
Minor forest produce	3,000
Sale of elephants and cattle	3,500
Total ...	4,61,700

7. *Chief works done.*—Main works are large scale Timber and Regeneration Operations and which are summarized as follows :—

	C. FT.
Final clearfelling and extraction in mature teak plantations	111,000
Final clearfelling and extraction in natural forests ...	70,500
Subsidiary (selection) fellings and extraction in natural forests	116,300
Handsawing of sleepers, 2,331 Broad Gauge, 902 Meter Gauge Thinnings in teak plantations—520 acres	85,500
	ACS.
Regeneration with teak on old plantation clearings	200
Regeneration with teak on natural forest do.	90
Regeneration with miscellaneous species do. ...	50
Tending of young plantations	600

Elephant capturing (one tusker aged about nine years was secured) and fire protection are other important works.

The timber is floated for sale to Beypore depot near Calicut, but part of it is first converted at the Government Saw Mill situated at Beypore. Timber logs are mainly dragged by elephants, but during the year a caterpillar ten ton holt tractor obtained from Coorg, was also in use in dragging logs.

Palghat Division.

Description.—The Palghat Forest Division extends over a portion of Malabar district, on west from near the Sispara (the Pass leading from Malabar to the Nilgiris), due east up to and across the Coimbatore district boundary. Thus the Palghat Forest Division falls in two revenue districts of Malabar and Coimbatore. Important deciduous forests of Bolampatti Valley and Walayar and evergreen forests of Chenat Nair, Attapady and Silent Valley are the chief reserves included in this division. Various types of forests ranging from dry scrub jungle of Thadagam Valley with less than 20 inches of rainfall, to the virgin evergreen forests of Silent Valley receiving over 200 inches of rainfall (and infested with wild elephants) are found in this division.

2. *Area of reserved forests and lands.*—263 square miles.

3. *How the forest district is split up into subordinate administrative charges—*

	Name of range.	Number of beats.
1.	Palghat	10
2.	Bolampatti	12
3.	Mannarghat	10
	Total ...	32

A staff of 13 foresters and 76 forest guards and watchers help the rangers in protection of reserves and in the execution of works.

4. *Cost of administration—*

	Rs.
District Forest officer	9,761
Assistant Conservator	2,887
Rangers	8,951
Subordinate and protective staff	19,052
Clerical and menial staff	7,992
Vernacular Training School	9,706
Miscellaneous including contingencies	3,145
Total ...	61,494

5. *Cost under other important heads—*

Timber operations	45,471
Sowing and planting	3,803
Fire protection	2,717
Roads and bridges—New works	1,228
Other miscellaneous items	11,428
Total ...	64,647

6 *Income from main sources—*

From reserves—

	Rs.
Timber	10,234
Firewood	46,938
Bamboos	23,178
Grazing	5,713
Minor produce	3,094
Miscellaneous items	7,738
	96,945
Deduct refunds	40
Total ...	96,905

From unreserves—	Rs.
Timber	2,250
Firewood	2,015
Minor produce	3,995
Total ...	8,260

N.B.—Reasons why revenue under timber is much less than expenditure is that Silent Valley sleeper operations were just begun in this year and hence revenue from sleepers already prepared and delivered to the railways, will as usual be credited in the following year. Similarly some revenue from kolmarams also will be collected after April 1929. The total of such revenue from both sources amounts to Rs. 67,990.

7. *Chief works done in the division.*—The most important work was the starting under very difficult conditions, of Timber operations in the inaccessible Silent Valley Reserve. The success achieved being very satisfactory these operations (mainly to supply mesua sleepers and incidentally for working Dicopsis, Poon, etc., for kolmarams) are to be continued, on more extensive scale, in future.

Other main works were regeneration operations, viz., about 97 acres of teak planting in Chenat Nair, Dhoni and Walayar Reserves; 25 acres of sowings of teak and other timber species carried out in Bolampatty Reserve under Tuckle system (Ponam); clearing and climber cutting over 1,350 acres in Walayar and Bolampatty Valley Forests.

The Nilgiris Division.

Description.—The forest division extends over the whole of the Nilgiris district. In the south-west, stretching from the lofty crests overlooking Malabar, to Ootacamund town lie the grass covered downs (the kundahs). The centre south and south-east of the plateau which once might have been evergreen forests, is now occupied mainly by Badaga cultivation and flourishing tea estates. The north and north-east of the district is mainly reserved forests which are of great climatic use in protecting the outer slopes, but scarcely of any economic value except for some sandalwood in the lower dry belts. The Mudumalai forests occupying the north-west corner of the district, and with an average elevation of about 3,000 feet contain valuable species such as rosewood, teak and the terminalias, but the quality of the timber is much degraded from over-exploitation at the end of the last century and by constant fires. The Mudumalai reserve came into the possession of the Forest department by purchase from the Tirumalpad of Nilambur, only in the year 1919.

2. *Area of reserved forests and lands.*—491 square miles.

3. *How the forest district is split up into subordinate administrative charges.*—

Name of range.	Number of beats.
1. Ootacamund	16
2. Coonoor	22
3. Segur	7
4. Mudumalai	8
Total ...	53

The four rangers are helped by a staff of 13 foresters and 69 forest guards and watchers.

4. *Cost of administration—*

	RS.
District Forest Officer and his assistant	21,073
Rangers	12,229
Subordinate protective staff	24,998
Clerical and menial staff	11,790
Miscellaneous including contingencies	3,700
Total ...	73,790

5. *Cost under other important heads.—*

Timber	4,393
Firewood	13,226
Sandalwood	1,206
Feed and keep of livestock	17,832
Elephant capturing operations	2,250
Sowing and planting	3,105
Fire protection	2,205
Other miscellaneous items	12,090
* Nilgiri Game Association	5,311
Total ...	61,618

6. *Income from main sources—*

From reserves.

	RS.	
Timber	19,751	
Firewood and charcoal	52,741	
Sandalwood	9,639	†
Bamboos	684	
Grazing	6,201	
Minor produce	3,762	
Other sources (includes value of elephants sold and shooting licence fees)	11,811	
Total ...	1,04,589	
Deduct—Refunds	41	
Net ...	1,04,548	

* The last item is refund of shooting licence fees collected by District Forest Officer on behalf of the same Association and credit for which appears under Revenue side under other sources.

† Includes Rs. 1,305 credited in V Circle.

		Rs.
From unreserves.		
Timber		266
Firewood		2,377
Bamboos		13
Minor produce		320
	Total ...	2,976

7. *Chief works done in the division.*—Timber and elephant capturing operations in Mudumalai range, Departmental fuel operations and planting mainly of eucalyptus species in Coonoor and Ootacamund ranges, and the sandalwood collections in Segur and Coonoor ranges, are the main works of the district. But the District Forest Officer and Rangers, Ootacamund and Coonoor, have in addition to spend a lot of time investigating and submitting proposals to Government, on the numerous applications received mainly from Planters, for bits of reserves.

SUMMARY OF PROGRESS DURING THE FIVE YEARS, 1924-25 TO 1928-29.

The important events worth recording are—

Portable Saw mills were installed at Beypore (Nilambur), Chedleth (Wynaad) and Parappa (Mangalore South). All these three mills are controlled by the Chief Forest Engineer and the sawn outturn is disposed of at Beypore, Nanjangode and Kasargode depots by the Forest Utilization Officer. The total quantity of timber sawn by these three mills from the time of their installation upto 31st March 1929 was 612,885 cubic feet.

The Exploitation of the Nilambur Valley forests was brought under the Commercial Accounting System (Chapter II of Account Code) with effect from 1st April 1925 ; and since then the accounts of the division are audited quarterly by the Assistant Director of Commercial Audit. The accounts of saw mills and depots where mill-sawn timber is sold are also similarly audited. Wynaad division accounts, though not brought under Chapter II of Account Code, are also similarly audited.

The Forest Research section was transferred from the control of this circle to that of Working Plans Circle from 1st May 1925.

The abnormal floods of July 1924, which caused so much havoc in Malabar, were responsible for the complete destruction of 167 acres of young plantations and nurseries formed during the year in Nilambur and in addition 21 acres of plantations were completely lost by the erosion of the river bank caused by the floods.

Administration.—The following officers were in charge of the circle.

	From	To
Mr. R. D. Richmond ...	1st April 1924	6th May 1925.
Mr. T. A. Whitehead ...	7th May 1925	8th November 1925.
Mr. H. A. Latham ...	9th November 1925	1st June 1926.
Mr. T. Clear ...	2nd June 1926	23rd March 1927.
Mr. A. Wimbush ...	24th March 1927	...
Mr. A. A. F. Minchin ..	25th March 1927	4th August 1928.
Mr. F. R. Madan ...	5th August 1928	31st March 1929.

Area.—The areas at the commencement and close of the quinquennium are given below :—

	Beginning of 1924-25.	Close of 1928-29.
	SQ. MILES.	SQ. MILES.
Reserved forests	1,844	1,839
Reserved lands	106	106
Total. ...	1,950	1,945

The decrease in the area of reserved forest is mainly due to the disreservation and assignment of lands for coffee and tea cultivation in the Niligiris division, in accordance with G.O. Mis. No. 64, dated 12th January 1927. In the two years after this Government Order was issued, an area of 4,195 acres had to be disreserved to meet the heavy demand of planters.

Forest Settlement.—The area pending final settlement at the close of the quinquennium was 81·34 square miles, of which 75 square miles relate to the settlement of Mudumalais and Kumbarakolli blocks in the Nilgiris division. These forests were acquired at a cost of Rs. 1,82,144 from the Tirumalpad of Nilambur and came into the formal possession of Government in June 1925.

Demarcation.—The total length of artificially demarcated boundaries at the beginning of the quinquennium was 5,442 miles against 5,471 at the end.

Working Plans.—The important working plans and schemes prepared during the period are—

(1) A working plan for the Catechu areas of Coondapoor Range, North Mangalore division.

(2) Revised working plan for Nilambur forests.

(3) Do. Wynaad forests.

(4) Do. Beypore Cocoanut tope.

(5) Do. Walayar reserved forest.

(6) Do. Bolampatty Valley of Palghat division.

(7) Do. Mudumalai forests and
Do. the Plantations of Ootacamund and Coonoor ranges of the Nilgiris division.

(8) A scheme for sandalwood areas of Nilgiris division (Segur and Coonoor ranges).

In addition at the close of the quinquennium the preparation of regular working plans were in progress in the following localities:—

(1) Mangalore South for the whole division.
(2) In Nilambur for the new Amarampalam Reserve.
(3) In Palghat for Chenat Nair Reserve.

The areas under sanctioned working plans at the commencement and close of the period were 365 and 395 square miles respectively. Now that a Working Plans Circle has come into existence, the details of progress made will be dealt with in full in that Circle report.

Communications and Buildings.—The average annual expenditure was Rs. 73,262 against Rs. 88,000 during the previous quinquennium. During the period large outlay was incurred on the construction of buildings and roads especially in South Mangalore, Nilambur, Wynaad and Palghat divisions.

The most important buildings completed during the period were —

(1) Construction of two bungalows at Kadiri for the District Forest Officers of North and South Mangalore divisions at a cost of Rs. 37,172.

(2) Construction of a bungalow for the District Forest Officer, Palghat (about Rs. 18,000).

(3) Construction of clerks' and peons' quarters at Bishopdowns, Ootacamund, at a cost of Rs. 61,312.

As all these works were carried out by the Forest Engineering Branch, the expenditure was debited to that Branch.

Forest offences.—The average annual number of offences reported during the period were 1,693 against 1,778 in the previous quinquennium.

Fire protection.—The area under special protection decreased from 1,132 to 1,097 square miles.

The system of early Burning was in force in parts of North Mangalore, Wynaad and the Nilgiris divisions only. The area early burnt has been gradually brought down to what can be attempted satisfactorily by the staff available, for it is realized that the correct time for such burning is very limited, being only two or three weeks. Hence instead of attempting to burn extensive areas, as was done when the system was first introduced, all energies have to be concentrated in burning what constitute "danger zones," e.g., in neighbourhood of lines, paths, etc.

Protection from cattle.—As was the case during the last quinquennium the whole forest area was closed to goats. Of the area of 1,945 square miles of reserved forests and lands, 1,339 square miles or 69 per cent were opened to all animals except goats, and 261 square miles were open to all animals except goats and sheep. Nilambur is the only division where no grazing of any kind is permitted. For the remaining divisions, the incidence of grazing in the last year of the quinquennium varied from 6·6 in Palghat to 18 in Wynaad.

Regeneration of forests.—The total expenditure incurred on sowings and planting amounted to Rs. 2,10,993 in this period of five years. The main feature under this heading for the present quinquennium is an advance in concentrated artificial regeneration of the economically important timber species.

The artificial regeneration of teak and *Hopea* was successfully undertaken over larger areas than in the previous quinquennium, regeneration with *Hopea parviflora* being chiefly confined to South Kanara whilst teak plantations were extended in Wynaad, Nilgiri-Mudumalai and Walayar (Palghat). The problem of second rotation crop in the teak plantations of Nilambur has been partially solved on the silvicultural side by proper soil aeration but the introduction of 'Ponam' cultivation in Nilambur has not given satisfactory results. Plantations of the less important timber species have also been formed with a fair amount of success over small areas with a view to ascertain the conditions necessary for their future extension.

South Mangalore.—Artificial regeneration of Hopea over 668 acres mostly in Parappa and Mundaje-Kap Reserves was successfully established. Sowings of miscellaneous species such as *Terminalia tomentosa, Gmelina arborea, Melia dubia,* and also teak, over an area of 180 acres, scattered over the division, appear to give hopes of fair success and are being watched with interest. In addition seeds of various species were sown to supplement the coppice of valuable species over 300 acres clearfelled as fuel coupes.

North Mangalore.—Sowings and plantings of *Hopea* were done over about 1,929 acres mostly in Halesomeshwar, Sabladi and Kodiamale Reserves with fairly satisfactory results. *Acacia sundra* was tried over about 284 acres in Catechu coupes but the results were poor because of insufficient overhead and side light and drip. Seventy-five acres of unsuccessful sowings in Baindur Reserve were resown in 1929 with moderate success.

Wynaad.—Teak was planted on a larger scale than ever before: about 489 acres in Chedleth and Begur Ranges were fairly successfully planted up. Wild pigs have caused some damage to the 1928 Begur plantation by pulling out and chewing the stumps; but the casualties have since been replaced. Attempts were made in 1926 and 1927 to raise plantations of Rosewood, *Pterocarpus, Albizzias, Melia dubia, Lagerstroemia, lanceolata, Gmelina arborea, Adina cordifolia, Stephegyne parviflora, Terminalia tomentosa, Acrocarpus* and *Artocarpus hirsuta* and in all 61 acres were planted up. Of these *Adina* and Rosewood, *Albizza Odoritissima, Pterocarpus* and *Gmelina* showed moderate promise.

Palghat.—In the Chenat Nair evergreens, 60 acres of logged area were attempted to be regenerated with *Hopea*, and *Dichopsis*, but the result was scarcely satisfactory. In addition 70 acres of the lower deciduous slopes of the Dhoni Valley were planted with *Mahogany* of which about 50 have been partially established. In Coupe I (area 485 acres) of Silent Valley evergreens, gaps caused by the felling of about 1,310 mature timber trees were sown mostly with *Acrocarpus fraxinifolius* and some *Artocarpus hirsuta* in 1928-29. In all 8,723 patches were sown and the success so far is good. Teak was planted over 30 acres in Chenat Nair Reserve with very encouraging results. With the object of increasing the percentage of Teak in the Pole Forests of Walayar, 360 acres of felled coupes were planted with Teak stumps in patches where growth of valuable species was not sufficient. In the "Ponam" Working Circle of Bolampatty Range 126 acres were sown with seeds of *Pterocarpus*, Rosewood, *Terminalia tomentosa, Albizzia*, Teak, *Mahogany* and *Nim*, but the results have not been quite encouraging, mainly due to long breaks in rainfall in the growing season.

Nilambur.—Four hundred and twenty-six acres of mature teak plantations were clearfelled and regenerated with Teak and about 38 acres with other

species. But the results did not compare favourably with the first rotation crop. The causes adversely affecting a second rotation teak crop are an insufficient burn due to fact that most of the material in a teak plantation are saleable and as soil seems to have deteriorated not being fully covered under a pure teak crop. Hence experiments are now being conducted to improve the fertility of the soil by introducing cover crops especially a *Leguminose* plant called Boga (*Theprosa candida*). Floods of 1924 partly accounted for the failure of that year's plantation.

In addition 493 acres of virgin forests were clearfelled and regenerated with Teak and 151 acres with Rosewood, *Terminalia tomentosa*, etc., species. Teak has given quite satisfactory results especially in New Amarampalam. Attracted by the excellent results obtained in Travancore, in raising Teak plantations with field crop (Ponam), attempts were made to stock part of the above areas (about 342 acres) on similar lines. The dearth of land in Travancore induces the Ponamdar to pay greater attention to rules regarding timely sowings, weedings, etc., of forest crop, than at Nilambur. Hence our endeavours in this direction were discouraging. However 10 acres attempted under departmental "Ponam" in 1926 have given more encouraging results.

Nilgiris.—In the Mudumalai plateau 207 acres were clearfelled and attempts were made at regenerating them with Teak by stumping, dibbling, planting and by departmental tuckle. The earlier efforts were a failure but more recent attempts at growing teak with departmentally raised field crops (Tuckles) have yielded more promising results steady progress is being achieved and once the system of departmental Tuckles is well organised and properly understood the cost of raising teak plantations would be substantially reduced.

On the Nilgiri plateau 85 acres of hardwood *Eucalyptus* were successfully planted in the place of *Frenela* and inferior Australian wattles. Fifty-one acres were stocked with bluegum and Cryptomeria japanica mixed with Pinus khasya was raised successfully over 8 acres in Aramby Reserve.

Yield and outturn.—There has been a steady progress in the departmental exploitation for timber as can be seen from the following figures :—

		C. FT.
1924–25	... ...	675,000
1925–26	... ...	670,000
1926–27	... ...	745,000
1927–28	... ...	713,000
1928–29	... ...	942,000
	Total ...	3,745,000

The total quantity exploited during the five years was 3,745,000 cubic feet as against 2,563,000 cubic feet in the previous quinquennium.

It has been found possible to expand fellings as the newly created Working Plan Circle was able to prepare up-to-date working plans for the principal timber forests of Nilambur, Wynaad, Nilgiris-Mudumalais and Walayar (Palghat). Part of the increased outturn (612,885 cubic feet) was marketted after conversion at the 3 Government Saw Mills established since 1925 at Beypore, Chedleth and Parappa. The operations to supply sleepers to the Railways are also steadily expanding and in 1928-29 the number of

sleepers made amounted to 23,200 B. G. units. This number will be easily doubled in the near future, as the exploitation of what were hitherto believed to be inaccessible evergreens of Silent Valley Reserve, started in 1928 has proved to be a very profitable undertaking.

Financial results.—The net result for the five years was a deficit amounting to Rs. 80,940 or an average deficit of Rs. 16,188 per annum, as against a surplus of about Rs. 45,000 referred to in paragraph 12 of the Conservator's report for the previous quinquennium.

It has however to be recorded that for the last year of the present quinquennium, i.e., for 1928–29, there was a marked change for the better and the circle showed a net profit of Rs. 2,16,142. This was achieved mainly by expansion of timber operations referred to above under " Yield and outturn."

It must however be pointed out that the following items of revenue which should have been credited to the circle accounts by end of the quinquennium have been omitted for reasons noted below :—

(*a*) According to the commercial system of accounting the net profit made by Nilambur concern in a year is given credit in the accounts of only the following year. For this reason a sum of Rs. 78,783 out of the profit actually realized in 1928–29 will appear in next year's accounts.

(*b*) According to recent arrangements with the Railways the entire revenue for sleepers supplied in a year is paid for and credited to the accounts of the following year. This has unnecessarily reduced the profit by Rs. 1,71,562.

As both these systems came into vogue only during the period under report, similar profits of the previous quinquennium were not credited to accounts of this period.

It is only fair to consider this revenue in this report as large sums debited to expenditure side have appeared in our accounts.

Thus if these two items of revenue are added, the financial result would show a net profit amounting to Rs. 1,69,405.

On the expenditure side a reference may be made to certain special items. Due to the destruction of all buildings in Nilambur division during the Mappilla ryots and in order to provide good quarters for subordinates and officers who have to work in the very unhealthy tracts of Wynaad, a sum of Rs. 38,860 had to be incurred during this quinquennium. A sum of Rs. 2,10,993 was spent on sowings and plantings. The Ootacamund municipality had to be paid (in spite of protests) Rs. 13,763 in shape of land cesses for reserves included within the Municipal limits. Till May 1925, the Forest Research section for the whole Presidency was attached to this circle and expenditure on this score amounted to about Rs. 53,000. Similarly the expenditure incurred on account of the Inspector of Live-stock who looks after animals of other circles also is debited fully to this circle. The proportionate share which should be excluded amounts to just about Rs. 10,000.

OOTACAMUND,
2nd October 1929.

F. R. MADAN,
Acting Conservator of Forests, VI Circle.

ADMINISTRATION REPORT OF THE MADRAS FOREST COLLEGE, COIMBATORE, FOR THE PERIOD FROM 1ST APRIL 1928 TO 31ST MARCH 1929.

CHAPTER I.—CONSTITUTION.

Staff.

Principal.—The office of Principal was held by Mr. C. R. F. Williams throughout the year.

Instructors.—The posts of Senior and Junior Instructors were held as follows:—

Name of officer.	Period.
Senior Instructors.	
Mr. D. F. Stileman	1st April 1928 to 1st July 1928.
Mr. J. C. Wrench	2nd July 1928 to 31st March 1929.
(This officer was attached to the College from 16th June to 1st July 1928.)	
Mr. R. H. Mitchell	1st April 1928 to 14th July 1928.
Mr. P. W. F. Walpole	15th July 1928 to 31st March 1929.
Junior Instructors.	
Mr. M. C. Chandy	1st April 1928 to 10th July 1928. *Vacant from* 11th July 1928 to 8th August 1928.
Mr. C. M. Belliappa	9th August 1928 to 31st March 1929.
Mr. M. S. Raghavan	Throughout the year.

Sub-Assistant Surgeons.—Messrs. M. B. Victor, A. Apprameswaran, I. Vasudeva Rao, Chintan Nayar and M. D. Umapathi were attached to the College during the camping periods as Medical Officers and they delivered occasional lectures in First Aid and Camp Hygiene. In Headquarters First Aid lectures were delivered to the senior students by the Medical Officer in charge of the Lawley Road Dispensary.

All students were instructed in Physical Training and Drill by the College Havildars under the supervision of the second Senior Instructor (Messrs R. H. Mitchell and P. W. F. Walpole).

Board of Visitors.—The Ex-officio Presidentship of the Board of Visitors was held during the year under report by Mr. R. D. Richmond, Chief Conservator, from 1st April 1928 to 7th August 1928

and Mr. A. Wimbush, Acting Chief Conservator, from the 8th August 1928 to 31st March 1929.

The following officers were members of the Board during the year :—

Name of officer.	Period.
Mr. A. Wimbush	1st April 1928 to 7th August 1928.
Mr. A. A. F. Minchin	Throughout the year.
Mr. T. Clear	Do.
Mr. K. R. Venkatramana Ayyar ...	Do.
Mr. D. T. Barry	1st April 1928 to 6th June 1928 ;
Mr. F. R. Madan	7th June 1928 to 31st July 1928. 8th August 1928 to 31st March 1929.
Mr. J. H. Longrigg	1st August 1928 to 31st March 1929.
Mr. T. A. Whitehead	Throughout the year.

CHAPTER II.—INSTRUCTION.

1. *Special lectures.*—Mr. Pearce, the Logging Engineer, gave a series of lectures on practical map making and map reading, on extraction by mechanical means as applied in India and also practical instruction in contour mapping by eye ;

2. Mr. H. P. Ward, Forest Utilization Officer, gave a practical demonstration of sleeper passing to the students of the Senior Division.

3. Mr. E. S. Dawson, Forest Engineer, gave practical instruction in—

(*a*) Methods of correct logging for the Saw Mills ;
(*b*) Chenat Nair timbers ;
(*c*) Saw Mill management.

4. Mr. Sharma, Seasoning Expert, gave practical instruction in Seasoning of timber.

5. Mr. Devadoss, Inspector of Livestock, gave a series of lectures on treatment of livestock generally.

In addition various Range officers and District Forest Officers gave practical instruction to the students in camp.

The students visited the following mills and factories :—

(1) Kanjikode and Palghat Match factories.

(2) Saw Mills at (1) Olavakot, (2) Beypore and (3) Mount Stuart.

(3) Standard Furniture Company and Parry and Company's Saw Mills at Calicut.

Special work.—(1) Actual planting by the students of an area with teak stumps at Walayar.

(2) Survey of area and preparation of map and a simple working plan for the Lovedale School Forests.

1926–28 *Division.*—The final examination for the 1926–28 Division was held in June 1928. Thirty-two students appeared for the examination all of whom obtained Higher Standard Certificates. The general standard of this division was rather better than that of last year. The class average being 67 per cent against 66 per cent. No student obtained the Honours Certificate the highest student securing 79·5 per cent marks. This year the Bombay students carried off most of the prizes for the first time. The Madras students were not up to the standard of previous years. These form the last few members of the old Deputy Ranger class.

The following list shows the certificates awarded in order of merit :—

Number and name of student.	Circle, Province or State to which he belongs.
1. B. Wadhwani	Bombay.
2. T. N. V. Ramanujachari ...	IV Circle.
3. D. Patra	Orissa Feudatory States
4. A. Dubashi	Bombay.
5. Viraswami Nayudu	VI Circle.
6. J. Mascarenhas	Bombay.
7. M. Chitre	Do.
8. A Muhammad Akbar	VI Circle.
9. Parthasarathi Nayudu	II Circle.
10. G. Gangolly	Bombay.
11. E. Chelvam	Central Provinces.
12. Shahabuddin Memon	Bombay.
13. B. Chowdhary	Central Provinces
14. Wali Muhammad	Do.
15. A. Bendigiri	Bombay.
16. Abdul Razack	I Circle.
17. S. Anwar Ali	Central Provinces.
18. G. Rangaraju Nayudu ...	Do.
19. A. Majid Khan	Do.
20. Sohan Singh	Bombay.
21. D. P. Ketkar	Central Provinces
22. P. Sundaram Pillai	I Circle.
23. Rajaram Pillai	IV Circle.
24. Y. Anjaneyalu	I Circle.
25. Muhammad Ahmed Khan ...	Central Provinces.
26. Mirza Yacob Baig	Hyderabad.
27. A. Ghaffar Khan	Do.
28. G. Chaudhari	Central Provinces.
29. M. Ahmed Khan	Do.
30. S. Bohidar	Gangpur State, O.F.S.
31. G. Verma	Central Provinces.
32. A. Raghavayya	Private student.

Government and other prizes were awarded as follows :—

1. *Gold Medal.*—For the best second year student—B. Wadhwani.

2. *Campbell Walker Prize.*—For the best student in Forestry —B. Wadhwani.

3. *Brazier Prize.*—For the best practical all round Ranger—Sohan Singh.

4. *The Lodge Prize.*—For the best second year student in Forest Engineering—B. Wadhwani.

5. *The Madras Conservators' Prize.*—For the best seed 2nd year student in Survey and Drawing—B. Wadhwani.

6. *The Madras Conservators' Prize.*—For Botany—J. Mascarenhas.

7. *The Madras Conservators' Prize.*—For Range Administration—T. N. V. Ramanujachari.

8. *Madras Chief Conservators' Prize.*—For the best junior student—Jai Singh.

9. *Indian Forest Prize.*—For an essay by the present students —Jai Singh.

10. *Pentland Shield.*—For best all round athlete—Sohan Singh.

11. *Fischer Cup.*—For tennis—Sohan Singh.

12. *Moppil Nayar Cup.*—For Maraton race—(1) Sitaram Singh, (2) Astewala.

13. *Swimming Medal.*—G. B. Gangolly.

14. *Cowley Brown Cup.*—For the Inter-division Hockey—1926–28 division.

Messrs. M. F. Bridge, J. K. Pearce, J. M. Sweet, M. V. Laurie, D. M. Currie, E. V. Padmanaha Pillai, E. S. Dawson, H. P. Ward conducted the final examinations in June 1928.

As usual the students found difficulty in expressing themselves really intelligently in English and technical subjects and the difficulty of making them apply the principles learnt has been commented on by more than one examiner.

1927–29 *Division.*—This division, the present senior year began the year 27 strong, 26 of whom sat for the final examination. One student, R. Ponniah died at the General Hospital, Coimbatore, in March this year as a result of severe dysentery.

The final examination in Physical Science was held in June 1928 with satisfactory results. The best student of this batch is Jai Singh, a Central Provinces student.

First Aid Examination.—Thirty-two students were examined in First Aid by a medical officer of the Government Hospital, Coimbatore, and 29 students gained the Saint John's Ambulance Proficiency certificate.

1928-30 *Division.*—This division began with 17 students one of whom (a Central Provinces student) was reverted on account of continued sickness and long leave and another (a Hyderabad student) who was unable to follow the course was sent down after the first periodical examination. The present strength of the class is 15. The class average is 70 per cent while the top student has 79 per cent. This is a Central Provinces student.

The number of students admitted during the year into the College is considerably less than in previous years, the average admissions since the inception of the College being 27. The decrease is mostly due to the fact that there was only one Madras student this year against the usual number 8.

The concession of the reduced rate of tuition fees, viz., Rs. 500, for the whole course for two Madras students was sanctioned in 1927. This has only been taken up in one instance.

Periodical examinations.—The periodical examinations held during the year show that the two divisions are making satisfactory progress.

Practical training in headquarters.—Besides the usual Saturday morning excursions, a number of other days were devoted to practical work in the estate. The demonstration forest afforded opportunities for applying sylvicultural and utilization principles. A certain amount of engineering was also carried out.

Prize giving.—The annual prize giving was held at the College on the 30th June 1928 when the Honourable Diwan Bahadur M. Krishnan Nayar, Member of the Executive Council, Madras, presided and very kindly presented the prizes and certificates. The usual garden party in the College grounds followed.

CHAPTER III.—ADMINISTRATION, TOURING, HEALTH AND CONDUCT.

Administration.

Board of Visitors' Meeting.—The Board of Visitors' meeting was held on Friday, the 29th June 1928. The following subjects of importance were discussed and decided :—

1. *Additional camping period at Walayar.*—In order to make the College course more practical an area of 22 acres of forest in Walayar was taken over by the College in March 1927 and it was decided with the consent of the Chief Conservator and Conservator,

VI Circle, that coupes of approximately 5 acres should be demarcated by the students annually, sold by the District Forest Officer in the usual sales, and the area burnt lined, staked and planted with teak by the students on their return from hill tour. This was carried out for the first time in 1928 (August).

In order to take full advantage of the rains it was suggested that the junior division of the College should camp at Walayar for 10 days in June each year between the written examination and the end of the term, when they will plant up the area with teak stumps. This additional camp was approved by the Board.

2. *Return of tuition fees in the case of students sent down as being unable to profit by the course.*—It was decided that there was no good reason why fees should be refunded in the case of a student sent down from the College. It was considered that the authority deputing a student is responsible for his selection and for his ability to follow the course.

3. *Payment of tuition fees in advance for six months instead of one year.*—This was not accepted, as in this case the Madras Government will be put to a greater loss than at present and there was no reason why this Government should suffer for the error in selection made by another party.

As shown by the figures given in statement No. I appended to this report the actual net cost of the College to Government this year has been Rs. 64,471 against Rs. 58,834 of the previous year. The increase is due to the number of students from outside Provinces and States being less by 10 which resulted in the decrease of Rs. 15,000 under tuition fees as compared with the previous year.

Touring.—The camping during the year was carried out in accordance with the sanctioned programme—vide details below :—

April and May 1928—1926-28 *Division.—Arambyshola Camp.*—Final examinations in survey and working plans were conducted by outside Examiners, and the Conservator, VI Circle, examined the students in practical sylviculture.

A general inspection of the eucalyptus forests was carried out, and a simple working plan prepared for the Lovedale School forests.

Under Engineering, a cantilever bridge was constructed, and various road estimates and alignments were undertaken.

1927-29 *Division, Bandyshola, Coonoor Camp.*—A general study of Eucalyptus growth was undertaken, and practical instruction in the making of charcoal given. Enumerations and volume estimation were carried out, together with a little tending among the new hardwood coupes.

Under Engineering the main instruction was in road alignment and map making with the trailer tape. Exercises in lining and, staking an area for planting were also given.

June 1928, *August-September* 1928—1927-29 *Division, Walayar Camp.*—This camp was largely taken up by weeding and replacing casualties in the coupe planted with teak stumps in June.

The enumeration, demarcation and survey of the 1929 coupe, construction of a trestle bridge across the Walayar stream and general inspection of district areas completed the programme here.

November-December 1928—1927-29 *Division, Nedungayam Camp.*—This was as usual one of the most interesting camps. Several days were spent in Calicut inspecting saw mills, depots and factories, and a general inspection of the teak plantation in Nilambur and Nedungayam undertaken. The regeneration areas were closely studied, and the natural jungle at the foot of the Nilgiri hills.

Stem analysis and timber rafting were gone into practically.

Lines and levels were run, and a plan drawn up for a suspension bridge across the river at Nedungayam.

Map making by the trailer tape, enumerations, and road alignment were also carried out.

The students were instructed in swimming and tested at the end of the camp.

The Conservator, Working Plans Circle, examined the students in Practical Sylviculture.

January-February 1929—*Dhoni Camp*, 1927-29 *Division.*—The students made a general study of extraction by mechanical means, and also the question of regeneration of evergreen areas. Several enumerations were undertaken and a number of days spent in map making and road alignment.

The Saw Mill at Olavakkot was visited twice and the seasoning plant studied.

The Conservator of Forests, Sixth Circle, examined the students in Practical Sylviculture.

September-October 1928—*Sadivayal Camp*, 1928-30 *Division.*—The first camp of the College year was devoted to general instruction in the principles of Sylviculture and a good deal of survey work was undertaken.

November-December—*Mount Stuart Camp*, 1928-30 *Division.*—The regeneration of the teak areas was thoroughly gone into, and enumerations in the natural mixed teak as well as evergreen jungles carried out. The identification of shola species took some little time.

A certain amount of actual thinning was undertaken.

Under Engineering the main items were study of road construction, some bridges, map making and survey.

January–February 1929—*Kargudi Camp*, 1928–30—*Division*.—A fair amount of time was devoted to fire protection work, and to study of the teak regeneration areas. Enumerations were carried out, and road alignment, map making and survey were gone into practically.

Tour journals.—A record of all work done in camp is maintained in the form of tour journals and District Forest Officers are informed of any work carried out by the students which might be of use or interest to the division.

A separate tour journal to show the work carried out in the College teak area at Walayar was opened during the year.

District Officials.—The very warm thanks of the College are due to the officials of the districts visited who so kindly not only did all in their power to make our camps comfortable but went out of their way to show us all that was of interest in the locality and in the midst of their work spared time to give practical instructions to the students who learnt a good deal from them.

Inspection.—The students were inspected at Nedungayam by the Conservator, Working Plans Circle, and at Arambhyshola and Dhoni by the Conservator, Sixth Circle. The Chief Conservator inspected the students while at work near Wellington.

Swimming.—Swimming was practised at Kargudi by the junior students in the Moyar river. During Nedungayam camp the students of the Senior Division were tested in swimming and student G. B. Gangolly was awarded a medal by the Athletic Club for swimming.

Health.—The students while at the College are subjected to semi-military discipline. There is no doubt that the system of regular exercise consisting of compulsory games and daily physical training combined with regular medical attendance turns out a very smart healthy student.

The health of the students was generally good in all camps except at Dhoni where on account of the feverish season the number of students with fever was great.

Conduct and discipline.—The standard of discipline at the College has been satisfactory and the conduct of the students good.

CHAPTER IV.—THE GASS FOREST MUSEUM, AND COLLEGE LIBRARY.

1. *Museum.*—Mr. G. Viswanatha Ayyar, the Curator, was in charge of the Museum throughout the year.

Three coloured plates showing different stages in the germination of three timber species, and two anatomical diagrams were prepared and exhibited. A representative collection of samples of the more important timber species of the Presidency together with the minor forest produce pertaining to them was taken from the Museum, and put on show in the "Park Fair Exhibition" held in Madras during the Christmas.

A paper on the "Identification of timber" was read by the Curator in the "Indian Science Congress." The key for identification of fifty of the more important Madras timbers prepared already was further improved, and published. A short course of lectures was given by the Curator to the senior students of the College on timber identification and Systematic Botany.

A large number of sheets were added to the Herbarium, and some correctly named spares were despatched to Oxford and Cambridge.

That the Museum is becoming more and more interesting and instructive to visitors is shown by their increase in number from 29,846 to 31,850.

2. *Library.*—Eighty-two books were added to the library during the year.

CHAPTER V.—SUPERVISION, WATER-SUPPLY, ROADS, BUILDINGS, ETC.

Supervision.—Mr. A. Marudachallam Pillai continued as Overseer throughout the year. Mr. M. S. Raghavan as House Tutor.

Water-supply.—The water-supply has been satisfactory.

Office establishment.—Mr. K. S. Seshagiri Rao, the permanent Manager, has been transferred to the Conservator's office at Salem and the office Accountant is acting for him. The work of the office staff has been satisfactory.

Roads.—All the existing roads have been kept in proper repair.

Buildings.—All the buildings in the Estate including the hostel blocks were maintained by the Public Works Department. The accommodation in the store godown was found insufficient for

storing the tents of the Chief Conservator, the Engineering and Working Plans branches, sanction has now been obtained for converting the unused saw-pit into a godown. The work has now been taken on hand.

Athletic ground.—During the year a sum of Rs. 190 was spent for improvements of the athletic grounds.

CHAPTER VI.—GENERAL.

Stock taking—General stock.—The stock of the College was checked in detail in July 1928 by the staff of the College and found correct. The articles found useless or unserviceable were written off after proper sanction.

Saleable stock.—A list of articles in saleable stock which have been in stock for some time and for which there was no demand was made out and sold in auction, the difference between the book value and the amount realized being written off under proper sanction.

Athletics.—Athletics forms a compulsory part of the College curriculum and is particularly important. The number of students available has been twenty below the average of past years. This has naturally affected in all branches of sports, especially as, apart from hockey, very few students of either year have a natural bent towards outdoor games.

The annual College sports were held in October and as the weather was fine, it was very successful. The Richmond Cup which is awarded to the student obtaining the greatest number of points in the more important events was won by A. Astewala, a Bombay student who secured 25 points. The various events were on the whole fairly well contested, and there was a definite improvement in the standard for long and high jumps.

The Cowley Brown Cup for inter-division hockey was won by the senior division by four goals to one after a good game.

The Marathon race over a seven-mile cross-country course, was won by the senior division with 144 points to 114. The first student—home—Sitaram Singh, completed the course in 45 minutes and won the cup presented by M.R.Ry. K. Rama Raja Mannarghat Mupil Nayar Avargal.

The Pentland Shield awarded to the best all round athlete was won by A. Astewala, a Bombay student.

The Fischer Cup for tennis was won by D. V. Nagaratnam, Madras student.

As neither the seniors nor juniors had any previous experience in cricket, it was not possible to enter a team this year, especially as the local tournaments take place in August and September soon after the College year begins.

The hockey team, though good, was beaten in the first round of the Y.M.C.A. Tournament after a good game. The Walayar and Sadivayal camps rather interfered with combined practice which is so necessary.

The post of vice-presidentship of the athletic club was held during the year as follows:—

Mr. D. F. Stileman ... 1st April 1928 to 1st July 1928.
Mr. J. C. Wrench ... 2nd July 1928 to 31st March 1929.

COIMBATORE,
25*th August* 1929.

C. R. F. WILLIAMS,
Principal, Madras Forest College, Coimbatore.

Statement No. I—Statement showing Revenue and Expenditure at the Madras Forest College, Coimbatore, during 1928-29.

Budget heads.	Amount. RS.	A.	P.
Receipts.			
VIII. Forests (*e*) Miscellaneous—			
(2) Forest College	54,122	6	0
(3) Rents	1,705	8	0
Total ...	55,827	14	0
Deduct refunds ...	980	6	6
Net revenue ...	54,847	7	6
Expenditure.			
Pay of officers—			
Non-voted	23,519	1	0
Voted	26,369	13	0
Pay of establishment—			
Permanent	19,668	12	0
Temporary	2,087	1	0
Allowances—			
Non-voted—			
Cost of passage	96	7	1
Travelling allowance	3,147	1	0
Voted—			
Travelling allowance	7,267	12	0
Honoraria—Voted	855	0	0
Non-contract contingencies—			
Non-voted—			
Rates and taxes	107	10	0
Voted—			
Pay of menials	2,121	4	0
Rents	22,767	8	0
Telephone charges	175	0	0
Miscellaneous	4,255	15	5

Statement No. I—Statement showing Revenue and Expenditure at the Madras Forest College, Coimbatore, during 1928-29—*cont.*

Budget heads.				Amount. RS. A. P.
Expenditure—cont.				
Supplies and services—General—				
Apparatus and materials				2,694 14 0
Books and periodicals				215 12 0
Miscellaneous				2,751 6 0
Grants-in-aid—Recurring—Miscellaneous—				
Grant to athletic club				400 0 0
Works—				
Forest College works—				
52-A—Capital outlay on forests B—Conservancy and works—Buildings—Works in progress				189 6 0
8 (*b*) Works—Repairs				2,585 9 0
Total expenditure ...				1,21,275 3 6
Deduct—	RS.	A.	P.	
Revenue realized				54,847 7 6
Expenditure on Museum—				
(*a*) Pay of Curator	1,538	3	0	
(*b*) Pay of Museum watchers and other expenses at the Museum in connexion with exhibits ...	418	3	0	1,956 6 0
				56,803 13 6
Net cost on account of the College ..				64,471 5 6

Statement No. II—Madras Forest College, Coimbatore, 1928-29.

Serial number and name of student.	Circle or State to which attached.
1. M. G. Nayudu	V Circle.
2. L. V. Joshi	Central Provinces.
3. Nirpat Singh Todmar	Do.
4. E. Cameron	Do.
5. S. L. Dube	Do.
6. S L. Parasar	Do.
7. B. Raj Singh	Do.
8. K. M. Thomas	Bombay.
9. L. S. Mutkekar	Do.
10. R. S. Deshpande	Do.
11. M. M. Asddi	Do.
12. Y. K. Vaze	Do.
13. H. B. Mohssin	Hyderabad.
14. B. B. Das	Court of Wards.
15. A. B. Phadke	Jawhar State.

ADMINISTRATION REPORT OF THE FOREST ENGINEERING BRANCH FOR THE OFFICIAL YEAR 1928–29.

I. Introduction.

The past year has been one of uncertainty. The policy of the Forest Department has changed radically from that of 1923—26 with the new administration, and as the work of the Forest Engineering Branch must necessarily depend almost entirely on the quantities and distribution of raw material made available for extraction and marketing, plans of work outlined before 1926 have had to be materially altered to meet new conditions. Government did not see fit to accept or lay down any definite programme of development or to relieve the commercial activities of duplication of accounts and divided control. Mr. Pearce's 5-year programme and the reorganization proposals of 1927 have died a natural death.

Progress has however been made.

2. The position of the Chenat Nair concern has again improved until it now not only meets all its actual running expenses but is carrying a considerable share of the depreciation on plant, roads and machinery.

The portable saw mills have improved their efficiency, and while Chedleth and Top Slip were only beginning to show normal working during the last two months of the year, they have since shown very marked improvement and should approach the working results of the other mills by the end of the current year.

It is very interesting to note that, despite the very large losses shown by the theoretical method of commercial book-keeping adopted, taking all forest divisions where saw mills were or are located and comparing revenue and expenditure under the ordinary Government accounts for a like period of years, before and after the establishment of the Saw Mills, an increase in net revenue for the divisions concerned of Rs. 4,36,553 is shown. This makes clear that the losses shown in the audits are not real or actual. Where small actual losses are made by the mill in itself they are often more than made up by the indirect benefits accruing from the spread of general overheads over a larger outturn and from the fact that large quantities of inferior logs are not dumped on the market thereby reducing prices and producing a large surplus of logs in depots which cannot be sold currently, and which rapidly deteriorate in value.

3. Utilization sales have again increased to over 13¼ lakhs and the overhead costs have been reduced by 50 per cent.

Sleepers supplied to the railways increased from 34,444 in 1927–28 to 55,694 in 1928-29 and total sales from this source from Rs. 2,00,533 to Rs. 3,72,421.

4. The logging Engineer completed the field work of mapping and cruising in the New Amarampalam Reserve, submitted a

final report on the Someshwar and Andar cruises in South Kanara, and made good progress in the mapping and enumeration for the Mount Stuart working plan.

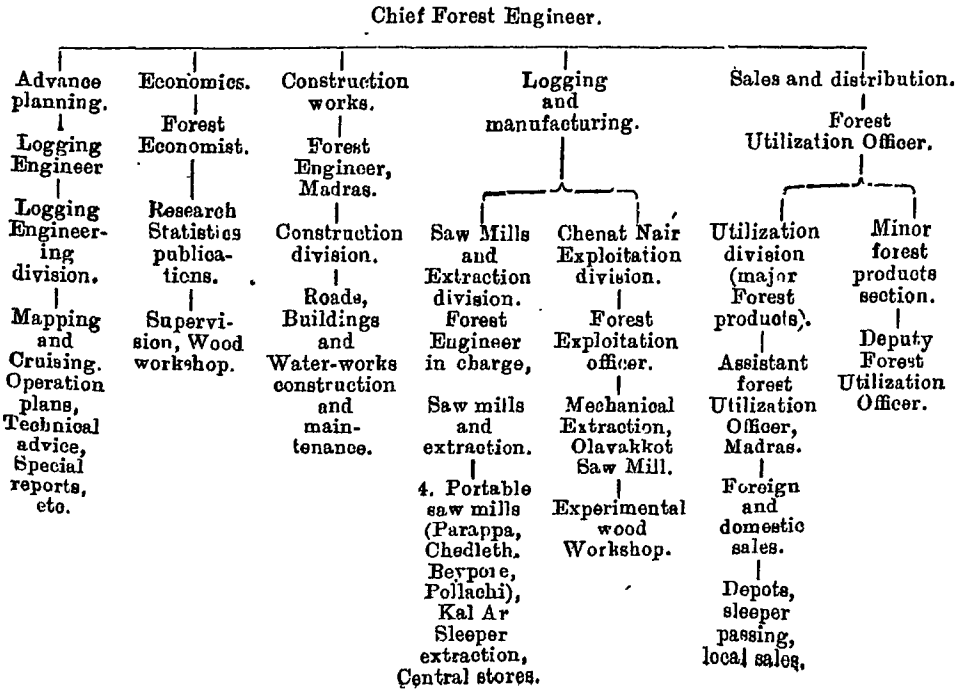
5. The Forest Engineer in charge of Roads and Buildings completed residential buildings at Chittoor and Olavakkot, nearly completed the one at Vellore in six months working time, and completed nearly six miles of metalled road in the Chedleth Range in the Wynaad, besides carrying out a number of surveys and preparing detailed estimates for new works to be undertaken.

6. The sleeper and timber extraction work in the Kal Ar Valley in the Anamalais continued on an increased scale and returned a substantial profit.

7. The Forest Economist completed an extensive report on Bombay, Madras and Hyderabad markets for Madras timbers; compiled a uniform log measurement book for the use of the Forest Department, and made a start in the systematic filing of information bearing on the work of the department for reference.

8. Some changes were made in the organization of the Forest Engineering Branch caused by the abolition of the post of Assistant Forest Utilization Officer, West Coast, and by the installation of the experimental wood workshop at Olavakkot under the general direction of the Forest Economist.

Organization Chart of Forest Engineering Branch.


Chief Forest Engineer.
Advance planning.
Logging Engineer
Logging Engineering division.
Mapping and Cruising. Operation plans, Technical advice, Special reports, etc.
Economics.
Forest Economist.
Research Statistics publications.
Supervision, Wood workshop.
Construction works.
Forest Engineer, Madras.
Construction division.
Roads, Buildings and Water-works construction and maintenance.
Logging and manufacturing.
Saw Mills and Extraction division.
Forest Engineer in charge,
Saw mills and extraction.
4. Portable saw mills (Parappa, Chedleth, Beypore, Pollachi), Kal Ar Sleeper extraction, Central stores.
Chenat Nair Exploitation division.
Forest Exploitation officer.
Mechanical Extraction, Olavakkot Saw Mill.
Experimental wood Workshop.
Sales and distribution.
Forest Utilization Officer.
Utilization division (major Forest products).
Assistant forest Utilization Officer, Madras.
Foreign and domestic sales.
Depots, sleeper passing, local sales.
Minor forest products section.
Deputy Forest Utilization Officer.

II. The Chief Forest Engineer.

This post was held by Mr. C. S. Martin during the entire year.

2. Frequent inspections of field work were made during the year and tours were made during the ten of the twelve calendar months. Altogether 111 days were spent in camp.

3. Early in February a complete review of the work of the Forest Engineering Branch was submitted to Government with recommendations for the permanent organization of the Branch after the completion of the Chief Forest Engineer's and the Logging Engineer's terms of service.

III. The Logging Engineering Division.

During the year this division again increased the work turned out as will be seen below :—

	1926-27.	1927-28.	1928-29.
Baselines run—Miles ...	42	42·1	72·2
Acres mapped and cruised.	11,200	15,470	21,535

That the cost per acre increased considerably was undoubtedly due to the necessarily high cost of coolie labour in Amarampalam; the fact that a much larger proportion of the total area was 100 per cent cruised; to the exceptionally bad year for malaria at Mount Stuart, and last but not least that men cannot be expected to work year after year at heart-breaking work with no increase of pay and no hope of promotion. Government would undoubtedly have saved money by accepting some of the many proposals put forward looking toward the betterment of these men's lot. They have had verbal promises of improved conditions from two Chief Conservators of Forests, none of which could be given effect to.

In spite of the higher cost, when distributed on a basis of less than one pie per cubic foot, it will be recovered may times over, when the timber is finally extracted, by savings in laying out transportation systems and by the avoidance of guessing as to how much and what species of timber are to be found on the areas.

I consider this the most worthwhile work undertaken by the Forest Engineering Branch. Without the accurate information gained by it no really sound plans for forest development can be formulated.

The Logging Engineer's report on the year's work follows :—

Administration report of the Logging Engineering Division for the year 1928-29.

The staff of the Logging Engineering division was concentrated on two projects during the year under review. The mapping and cruising of the area designated in the Nilambur Working Plan as the "Inaccessible Working Circle" which was initiated during 1926-27 and continued during the

last few months of 1927–28, was continued as the "New Amarampalam Project." This area comprises the watersheds of the Karimpuzha and Thallipuzha rivers in New Amarampalam reserved forest, and is bounded on the west by the boundary of the "Conversion Working Circle" of Nilambur division; on the north-east, east and south-east by the Nilgiri district boundary; and on the north-west and south-west by the reserve boundaries. Before the Logging Engineering division started work in this area only the western fringes had ever even been explored, and no inspection paths existed in the interior. This is absolutely virgin forest, running from 400 up to over 5,000 feet elevation above sea level, and the urgent completion of the mapping and enumeration of the merchantable timber area, required to permit the Logging Engineer to make detailed exploitation plans before the expiry of his contract in 1929, was a herculean task. The other project carried on during the year was the mapping and cruising of the Ulandi and Tunacadavu ranges, Tekkadi leased forest, in South Coimbatore district, designated as the "Mount Stuart Project." This was undertaken to provide the data on which to base a revision of the working plan and to supply an accurate large scale topographic map which would enable exploitation routes and operations to be more efficiently and economically planned and organized. During the first two months of the year under review the Logging Engineer was absent on deputation to the Government of India in the capacity of Consulting Forest Engineer for the Andaman Islands. The balance of the year he held charge of the Logging Engineering division.

2. *New Amarampalam Project*—The mapping and cruising of the area south of the Karimpuzha (river) bounded by the Inaccessible Working Circle boundary on the west and the Panapuzha on the east, baselines for which had been run during the previous year, was carried out from after the Easter holidays upto the break of the monsoon in June. A few strips left unfinished were completed after the monsoon. A total of 2,500 acres was topographic mapped on the scale of 100 yards to the inch with 20 feet contours and 66⅔ per cent cruised (enumerated). An area of 1,185 acres in the vicinity of Gomanmalai (mountain peak) was mapped and cruised 33⅓ per cent.

During the monsoon, when field work was impossible, the office compilation of the preceding year's field work was done. This included maps and cruises of the Silent Valley Project, Kal Ar Valley (Anamalais, Valparai) Project, Nilambur Conversion Working Circle Enumeration Project for the Working Plans Circle, and New Amarampalam Project.

In October field work on the New Amarampalam Project was resumed. Two sub-projects were formed; the Karimpuzha sub-project working up the Karimpuzha Valley under Mr. B. Janakiram Singh, I. F. S. and the Thallipuzha sub-project under Mr. B. A. Cariapa, Extra Assistant Conservator of Forests. Heavy, late rains and consequent floods in the rivers engendered great difficulties in transporting samans and establishing camps, so that regular work did not get under way until in November. While the baseline surveying parties continued the primary baselines up the valleys, the rest of the parties were occupied in building paths to open up the country for access to the base camps, in clearing camp sites; and transporting tents, corrugated iron sheets, and thatties for huts; and in building camps. It must be remembered that no paths existed in the area worked this season and a great deal of time of subordinates' labour and consequent cost was

spent in opening up the area. Everything had to be transported in by coolie head-loads as we could not borrow any elephants from the district, they being all engaged in floating work.

The problem of coolie labour was a formidable one. We could not take any local labour as the Nilambur Forest district had first claim on their services. Consequently we had to go outside the area of local labour supply and recruit coolies from as far away as Mannarghat in the Palghat division. As the coolies would not remain in camp longer than 10 days, and as a large number of coolies were required to clear strip lines and do other coolie work fast enough to keep the large staff of cruisers and topographers employed, a special labour recruiting organization was effected. Ranger Swamikutty of the Utilization division with headquarters at Calicut was in general charge of the labour supply, with forester Theyunni Menon engaged full time in recruiting. Theirs was not an easy job, for it required a great deal of persuasion to get the coolies to come up to work in the depths of this unknown jungle, and they had to advance large sums of money on their own responsibility before the coolies would leave their villages. They both merit the greatest credit for not only keeping the field parties steadily supplied with the required number of coolies, but also for obtaining some Rs. 12,000 worth of labour on about 50 per cent advances without the loss of one pie of Government money—a truly meritorious record.

The Karimpuzha sub-project continued the theodolite-traversed dumpy-levelled "A" baseline along the south bank of the Karimpuzha from Edakutti across the Panapuzha and the Maiyankallanpuzha and crossing to the north bank of the Karimpuzha at Meenmutti (near where the 2,000 feet contour crosses the river). A half mile wide belt adjoining this baseline was mapped and cruised 100 per cent. From Meenmutti the 'A' baseline was continued east along the north bank of the Karimpuzha to near the limit of timber growth at the head of the valley. Another theodolite line designated as 'B' baseline was run west from Meenmutti along the north bank of the river and the traverse closed at the starting point. The closing error in elevation was only $2\frac{1}{2}$ feet in a distance of $4\frac{1}{3}$ miles. Paralleling the 'A' and 'B' baselines we ran compass-traversed, double Abney-levelled secondary baselines near the upper edge of good timber growth on the north side of the valley. All traverses were closed within the permissible limit of error. The north side of the valley was mapped from these baselines on the 100 yards to the inch scale. Cruising of alternate blocks about half a mile in width and running from the river up to the limit of timber growth was done 100 per cent and 40 per cent, respectively. The narrower south side of the upper Karimpuzha valley was similarly mapped and cruised from a series of compass baselines. The field work in this valley was completed by the end of the year under review.

Base camps were established at Meenmutti, at the end of the 'A' baseline, and at Manalthodu about half way between. A number of temporary camps were built at higher elevations convenient to the various areas in which work was carried on.

The Karimpuzha sub-project party consisted of rangers K. K. Appayya and P. M Mathew, and, during the last quarter, R. A. Pingale, head surveyor, Achuthan and 12 foresters, some few of whom were nearly always on leave. The work turned out by them included construction of 24 miles of paths; building four temporary bridges (the first ones built were washed away

by the late floods); clearing campsites and building six camps; surveying 16·4 miles of theodolite baselines and 11·8 miles of compass baselines, and mapping and cruising 3,800 acres of timber.

The Thallipuzha sub-project established base camp at the juncture of the Chinnathallipuzha and Thallipuzha rivers. Compass traversed, double Abney-levelled baselines were first run up the Chinnathallipuzha valley, one along the river and the other near the upper edge of timber growth along the west side of the valley. The traverses were closed with an error of 7½ feet in elevation, and 15 links in distance, the total distance being 5 4 miles. This area, including the narrow east side of the valley was mapped on the 100 yards to the inch scale and cruised, some 100 per cent, but mostly 40 per cent. A stadia transit baseline was run east up the Thallipuzha, with another stadia transit baseline along the south side of the valley total 2·8 miles. A further extension of 2 miles of compass baseline was run in this valley. The south side of the Thallipuzha valley which bears one of the heaviest stands of timber was mapped and 100 per cent cruised. As the growth at the far eastern end of the valley was poor, about 400 acres of this area was plane-table stock mapped and 100 acres or 25 per cent sample strip cruised. A tie line was run up over the pass east of Kuttrekal peak and down to tie into the Karimpuzha valley baseline system, closing with an error of 6 feet in elevation between the Thallipuzha and Karimpuzha baseline systems.

Having completed their work in Thallipuzha valley, toward the end of February the crew was transferred to the Karimpuzha valley to help finish the work there. One party ran 1·3 miles of compass baseline at the western end of the Karimpuzha area, and mapped and cruised 410 acres adjoining that done in 1926–27. Another party augmented by a few foresters from the other sub-project, took up the plane-table stock mapping on a scale of 8-inch to the mile and sample strip cruising of the area between the Panapuzha and Arikampuzha rivers, and of the south-eastern portion of the Maiyankallanpuzha valley adjoining that which had been intensively mapped and cruised by the Karimpuzha party. The area stock mapped included 1,580 acres of good timber, 1,950 acres of fair timber and 470 acres of poor timber growth, total 4,000 acres, plus a large acreage of barren rocky patches which had to be gone over to find the timber areas, but which has not yet been measured up. This area is topographically the most difficult in the inaccessible working circle and will doubtless be the last to be exploited. To open up this area 18 miles of paths are cleared.

The Thallipuzha sub-project party consisted of rangers T. D. Ponnayya and U. Vriddhachalam and ten foresters. Surveyor Pranatharthihara Ayyar divided his time between this and the Mount Stuart Project. The work turned out by the party consisted of: in the Thallipuzha valley building 14 miles of paths, constructing two bridges, building three camps, surveying 11 miles of baselines and the tie line, surveying 5½ miles of path constructed in the 1926–27 area after it was mapped, check cruising 180 acres in the 1926–27 area, and mapping and cruising 2,350 acres. The work done in the Karimpuzha side is given in the preceding paragraph. In addition three camps were built.

The new Amarampalam Project was practically completed by the end of the year under review. In April check cruising of a number of important areas was done, and some more sample strips run in the plane-tabled area, and the staff was then transferred for office compilation. A total of some

20,000 acres of accessible timber in the Karimpuzha and Thallipuzha watersheds has been mapped and cruised. The only areas of the inaccessible working circle that have been omitted are the Karimpuzha valley in the south-west corner of the circle, and the south bank of the Korampuzha in the north-west corner. These are relatively small areas, the former being very steep and broken country. They lie in entirely separate watersheds and would have to be tapped by entirely separate transport routes, and do not affect the consideration of the exploitation of the main Karimpuzha-Thallipuzha watersheds.

In considering the cost of mapping and cruising in new Amarampalam Project for the year, one cannot simply divide the total expenditure by the number of acres. The paths built by the Logging Engineering Division during the course of the work remain as inspection paths for the future and will be used for all forest administration and working in this area. Had we not built them, the District staff would have had to do it, for it is essential that all the reserved forest areas in which forest operations will sooner or latter be carried out be thus opened up by inspection paths. That this is a departmental policy is evident from the fact that a considerable mileage of inspection paths are being built in the Silent Valley at a cost of approximately Rs. 150 per mile. In fact that Nilambur District staff once started to build a path from Pulimunda up the Thallipuzha valley, but gave it up after a few miles. We have handed over to the district a net-work of paths that, providing they are kept cleared after the monsoons, will enable inspecting officers to cover practically the entire timber area. The paths up the two main valleys are connected with a path over the dividing ridge so that inspecting officers can go up one valley, cross over the divide and return by the other valley. Some of the paths we have constructed are good enough to rate as bridle paths; others are footpaths cleared sufficiently for coolie head-load transport. It is therefore only fair that the cost of the paths should not be considered a direct charge against the mapping and cruising, and that the expenditure thereon should be deducted from the total During October practically no work could be done because of the unusual late heavy rains. This was no fault of ours and it is not just to charge the cost of establishment for that month to the work. During the monsoon office work period, beginning the middle of June, the men were engaged principally on the compilation of other projects of the preceding year, so the pay of establishment for that month cannot be charged to new Amarampalam Project.

In accordance with the foregoing, the following is the total expenditure on the staff of the new Amarampalam Project for the months of April, May, half of June, November, December, January and March :—

	Rs.	A.	P.
Pay and non-voted travelling allowance of officers	7,728	13	0
Pay of rangers and foresters	8,033	9	0
Travelling allowance and allowances of rangers and foresters (including voted travelling allowance of extra Assistant Conservator)	8,770	9	0
Total ...	24,532	15	0

	Rs.	A.	P.
Expenditure on coolie labour (during the entire year), Thallipuzha ...	6,379	15	0
Expenditure on coolie labour (during the entire year), Karimpuzha ...	10,818	7	0
Total ...	17,198	6	0

Deduct for cost of paths in accordance with preceding paragraph :—

	Rs.	Rs.
Labour : 38 miles, at Rs. 100 per mile,	3,800	
18 miles, at Rs. 67 per mile,	1,200	5,000
Staff for aligning and supervision of construction : 56 miles at Rs. 33 per mile		1,850
Total ...		6,850

Note.—No accurate record was kept of the expenditure on path work for labour separately nor of the time the subordinates spent on path work ; so exact cost cannot be determined. However, it is thought that the above is a fair average figure including the cost of bridges. It compares quite favourably with the Silent Valley figure of Rs. 150 per mile which is believed to be for labour alone and does not include cost of supervision by subordinate staff.

Deducting the expenditure on paths as above we get as the expenditure on mapping and cruising work :

	Rs.	A.	P.
Officers	7,728	13	0
Rangers and foresters	14,954	2	0
Coolie labour	12,198	6	0
Total ...	34,881	5	0

For this expenditure the following work was done :

Construction of 12 camps,
Surveying of 46 miles of baselines,
Mapping and cruising of 14,245 acres.

On an acreage basis this works out to the following cost :

	Per acre. Rs.
Project officers	0·543
Rangers and foresters	1·050
Coolie labour	0·856
Total ...	2·449
	or
	Rs. 2 7 2

This does not take into account deductions that might deservedly be made for the handing-over-to-the-District value of the camp sites which were cleared and scraped clean of all undergrowth and which remain available

for pitching the tents of inspecting officers; nor for the currugated iron roofed hut left at Meenumutti which makes a rough but convenient overnight halting place for inspecting officers or their accompanying subordinates. The thatched roof coolie lines remain but will probably not last long. The other corrugated iron sheets which were used to roof temporary huts were handed over to the District Forest Officer. On the other hand if the Rs. 3,691-3-0, expenditure on pay and travelling allowance of the staff for October were added, it would increase the cost by annas 4 per acre. On a cubic foot basis the cost of mapping and cruising works out to *less than* 1 *pie per cubic foot*, on the timber cruised for extraction, even including October expenditure.

It will be observed that the labour cost was much higher than in preceding years. This was because under the difficult conditions enumerated in the fifth paragraph of this report we had to pay the coolies annas 12 per diem plus pies six per coolie per day commission to gang maistries without whom the required number of coolies could not be obtained. Also the coolies had to be paid for the two days required to walk up to the camps from Nedungayam where they were handed over by the Recruiting staff, and after they had worked 10 days, for another two days going down. As the coolies also had to spend several days going each way between their homes and Nedangayam we could not get out of paying them for all their days in the forest. Every effort was made to reduce the labour cost, but it could not be done and still obtain sufficient coolies to complete the project by the end of the year as we were required to do. Had the completion of the project not been a matter of such great urgency and could more time have been taken and a smaller crew accordingly employed, the cost on account of coolie labour could probably have been reduced.

It should be remarked that the subordinates on New Amarampalam Project had a very hard job to do, and that most of them did their best. They had to do extremely arduous work under difficult living conditions. They had to work in camp for 20 days at a stretch during which time they had two batches of coolies. At the end of the 20-day camp they were permitted to return to their families at Nilambur for a few days, which amounted to compensation for the Government holidays during which they did field work, and to get food supplies for the next 20th day camp. Nilambur being a two-day march from most of the camps, more than half of their relief period was occupied in making the journey. Some of the men needed considerable driving, and one forester had to be dismissed, but most of the men did their best to complete the Project on schedule. This too despite the fact that they got no more pay than their brethren in the regular line who could not conceivably have as strenuous sustained work to do. All of the rangers did very good work, and Rangers Mathew, Appayya, Vridhachalam and Poovayya were recommended for early promotion. Among the foresters, in his report Mr. Singh specially mentioned A. M. L. D'Souza and K. S. Muthana. Forester Poovappa, a recent graduate of the Madras Forest College, was made an Acting Ranger for purposes of discipline and control of foresters in the field and he did a ranger's work on forester's pay, the special allowances I tried to obtain for him being refused by higher authorities.

3. *Mount Stuart Project.*—The mapping on a scale of 12 inches to the mile and 100 per cent cruising of the timber in the Mount Stuart area was continued by an enlarged crew under the supervision of Mr. M. V. Laurie, I.F.S., Working Plans Officer. Mr. Laurie's administration report for the

year under review follows. It should be mentioned that a different system of cruising, as decided upon by the Working Plans Conservator, is used at Mount Stuart. There the calipering is done by coolies, who use calipers with each foot girth class indicated by a distinctive colour which the caliper-coolie shouts out to the forester-cruiser, who tallies the tree accordingly, and estimates the merchantable length of the bole. On the New Amarampalam Project the forester-cruisers caliper the trees themselves, recording the diameter breast height to the nearest inch, and estimating the diameter at mid-height as well as the length of bole. The difficulties mentioned by Mr. Laurie therefore do not arise. However it must be said that where the cruiser does the calipering himself he can only cruise a strip two chains wide and keep up with the Topographer who gives him his acre guide, while the Mr. Stuart Cruiser with three caliper coolies can do a strip three chains wide. Mr. Laurie's suggestion to replace coolies with a cadre of temporary forest guards is a good one, providing they can be utilized on other work during the monsoon. Otherwise they would be an additional cost burden during the monsoon when no field work can be done, and the educated subordinates are engaged in office compilation.

Working Plans Officer's Administration Report on Mount Stuart Project.

"The work on this Project was continued on the same lines as in the previous year, the only difference being that a running check cruise of about 5 per cent on the whole area was carried out, and stricter adherence to the prescribed limits of error in topography was enforced. This resulted in a distinct improvement in the accuracy of the cruising, and less subsequent rectification of topography in the field.

Field work was recommenced after the monsoon in September and continued until the end of March, when, owing to the high incidence of malaria among the men, it was found advisable to stop the field work, and retire to a healthy locality for the compilation of maps and cruise figures. The average field strength throughout the year was two rangers, 12 foresters and one surveyor. During most of the time before Christmas 3 parties were working daily, but during the latter part of February and in March, it was often only possible to get one party out, and on one or two days in March only two men out of 15 were working! The total number of days field work lost owing to sickness was 383 days. (Logging Engineer's note: This means that during the nine months field work season *over a year* of the working time of one man was lost because of fever.) I attribute the greater incidence of fever this year chiefly to the fact that most of the men had been working on this project last year, and had had much fever which had lowered their vitality and resistance to attacks.

The difficulty of obtaining labour was as acute as in the previous year. No local labour was available and all coolies had to be imported from Chalagudi, Palghat and Mannarghat, and it was difficult to persuade them to stay more than a month or six weeks at a time. The constant training of coolies, involving as it did training new hands afresh each time, and the low quality of the labour available, seriously affected the accuracy of the cruising. Many of the coolies did not know the names of the trees and a number of them (about 35 per cent) were found to be more or less colour blind and could not distinguish the colours on the calipers. The foresters found it

very difficult to control the coolies who tended to be careless and inaccurate in their measurements, and most of the inaccuracies are attributable to bad work by the coolies. If it were possible to recruit a cadre of temporary forest guards for cruising work, the work could be controlled much more effectively, and all disadvantages of the frequent changes of coolies would be avoided. The cost of a guard on Rs. 15 plus allowances would be about the same as that of a coolie on annas 12 a day working 24 days in the month, and the outturn and the quality of the work would be better. Two such guards could do the work of 3 coolies.

During the year one Deputy Ranger and two foresters from Bengal were attached to the project for training, and later on one Ranger and two foresters were deputed by Coorg to learn mapping and cruising and were attached to this project for training.

The total area cruised during the year under question was 7,290 acres, which brings the total area cruised up to 11,182. 26·2 miles of baseline were run bringing the total up to 54·8 miles. The cost of the actual field work completed during the year is as follows :—

	RS.	A.	P.
Pay and allowances of Rangers, foresters and surveyor for the 9 months of field work ...	9,533	8	0
Coolie labour	6,013	7	0
Erection of sheds for subordinates and coolies .	801	2	0
Contingencies and miscellaneous	46	12	0
Total ...	16,394	13	0

7,290 acres at Rs. 2-4-0·1 per acre

The increase in cost is due partly to the fact that most of the area cruised was much more heavily timbered than the area cruised in the previous year, but chiefly to the much greater amount of sickness during the year."

4. It will be observed that the cost per acre in both projects was considerably more than in preceding years. This is mainly accounted for, as previously mentioned, by unavoidably high coolie labour costs in New Amarampalam Project, and by unusually great loss of working time of the staff through fever in Mount Stuart Project. I believe another reason for the increased cost is the fact that most of the Rangers and foresters in the Logging Engineering division have been engaged in the arduous work of mapping and cruising for 4 or 5 years without any compensation by way of special pay or allowances or promotion, which they merited and deservedly expected. They are getting weary and despondent, at the lack of any monetary recognition, and look with envy on their more fortunate brother subordinates in the regular line whose life is a much easier one. This mental attitude cannot help but be reflected in their work, even though they try to do their best. They feel no incentive to exert that extra effort which means more acres per diem covered and correspondingly lower cost per acre. I have observed that it takes increasingly more 'driving' by the officers to maintain progress. As long as they get no more pay nor faster promotion than their brother subordinates doing ordinary work in the regular line, it is impossible to dispel this feeling of discouragement among the more experienced men who have put in years of hard work in the Logging Engineering division without recognition, despite the efforts of their superior officers to obtain for them the rewards they merit.

5. *Office staff.*—After a long struggle, sanction for adequate office establishment for the Logging Engineer was finally obtained. The original office establishment of one accountant and one tour clerk on the lowest grade of pay, which despite large increases in field staff and consequent heavy increase in office work during the past several years had not been augmented, was increased in December by the addition of a head clerk, an accountant on a higher scale of pay, enabling a better qualified man to be obtained, and an assistant clerk. Pending receipt of sanction for adequate office staff, Mr. C. Mahony, Extra Assistant Conservator of Forests, was posted by the Chief Conservator to help with the office work. When the additional establishment was obtained, Mr. Mahony was put on to learning the mapping and cruising and other work of the Logging Engineering division.

The accounts of the Logging Engineering division for 1928–29 were audited by the audit staff of the Accountant-General's Office soon after the close of year and were pronounced to be satisfactory.

6. At the beginning of the year Mr. P. W. F. Walpole held charge of the Logging Engineering division, and continued in charge until May, when the Logging Engineer returned from his deputation to the Andaman Islands and resumed charge. After returning, in addition to organizing and directing the field and office compilation work of the projects of the division, the Logging Engineer had the heavy task of completing his Consulting Engineer's report on Forest Exploitation in the Andaman Islands.

During the year under review the Logging Engineer wrote the final Report on Someshwar-Andar Project and formulated and submitted proposals for working for the next two decades.

During the last six months of the year Ranger P. A. Venkataraman of the Logging Engineering division was on deputation to the Philippines studying Logging and Milling."

IV.—The Forest Economist.

The most important works carried out during the year under review by the Forest Economist were the compilation of a very detailed timber market report covering Madras, Bombay, Mysore and Hyderabad, which is now in the hands of the printer; and the calculation of uniform measurement tables for logs to be used in all the divisions of the department.

2. The former volume can only be of use if the information contained therein is kept up to date by recording current market information as it becomes available. For this purpose the report has been interleaved with blank pages on which such information may be noted.

3. The measurement tables were much needed as it was found that different methods of measurement were used in the various divisions of the Presidency and no uniform set of measurement tables was in existence.

4. The first year's working of the Wood Work Shop at Olavakkot was very successful and produced valuable knowledge of the qualities and possibilities of a number of Madras timbers as

will be seen from a perusal of the report on its working. The net cost was small in comparison with the results obtained.

5. The exhibit at the Park Fair held in Madras during the Christmas holidays was the most successful yet held by the department.

As this is one of the few opportunities offered to bring the work of the Forest department to the direct notice of the public, it serves a very useful purpose and should be made a permanent part of the department's activities.

The report of the Forest Economist follows: The sections on the Wood Workshop and the Madras Park Fair were prepared by Mr. E. S. Dawson who has given much time and energy toward making these features of the work successful.

PROGRESS REPORT ON ADMINISTRATION OF THE ECONOMIST'S SECTION OF THE FOREST ENGINEERING BRANCH FOR THE YEAR 1928-29.

"The post of the Forest Economist was held by Mr. J. A. Master, I.F.S., up till 11th October 1928, the date on which he proceeded on four months' leave. He was succeeded by Mr. C. S. Martin, Chief Forest Engineer, who continues to discharge the duties of the Economist, in addition to his own.

The clerical staff consisted of one clerk-typist (tour clerk), one ledger clerk and two temporary clerks for a period of two months. The ledger clerk's services were not utilized, as he was more urgently needed by the Forest Utilization Officer to pull up arrears of work. Subsequently, this clerk's post was transferred to the Forest Utilization Officer in G.O. No. 2003, Development, dated 27th November 1928.

Against two temporary clerks sanctioned for two months for the compilation of the Volume Tables, one was employed for less than three months.

Library.—Useful and interesting books were added to the library. The following books were ordered for the library before 31st March 1929:—

1. "Veneers and Plywood." By Knight and Wulpi.
2. "Air Seasoning and Conditioning of Timber." By Major F. M. Oliphant.
3. "Dry Rot in Wood." (Forest Products Research Bulletin No. 1.)
4. "Commercial Timber Trees of the Malay Peninsula." By Foxworthy.
5. "Modern Plywood." By Shirley B. Wainwright.
6. "Beautiful Floors." By Longbell Lumber Company.
7. "Casein and its Industrial Applications." By E. Sutermeister.
8. "Modern Furniture Veneering." By Edward W. Hobbs.
9. "The Principles of Kiln-Seasoning of Timber, Part I: Types of Commercial Kilns in use." By S. T. C. Stillwell.
10. "Timber Trade Lectures, 1927-28."

The first four books only were received within the year and the next five subsequently, as the order for most of the books was placed after October 1928. The remaining one book is expected to be received shortly. The books in the library are being constantly referred to by Forest officers and also by some business people. During the latter half of the year, the stock was examined and issues checked. The library is now functioning well.

The following periodicals were received and circulated by this office to the officers of the Engineering branch :—

1. "The Timberman."
2. "The Indian Forester."
3. "The American Forests and Forest life."
4. "The Australian Forestry Journal."
5. "The Mermaid."
6. "The Hardwood Record."
7. "The Tropical Agriculturist"
8. "The Timber Trades Journal."
9. "The Capital."
10. "Forestry : The Journal of the Society of Foresters of Great Britain."
11. "Empire Forestry Journal."

Out of these, Nos. 3 and 7 were ordered to be discontinued from January 1929. The rest are now being received regularly and their circulation has now been regularised.

Ledger filing.—The clerk sanctioned for this work was engaged otherwise in the Forest Utilization office. No appreciable work was done. But the new tour clerk appointed on 11th October 1928, is working at ledger-filing during his leisure, and the work is progressing since January 1929. Important articles from journals, etc., are being ledger-filed regularly now. A reference book is also being opened to facilitate reference.

Liaison between Forest Economists, Madras and Dehra Dun.—Closest co-operation and contact were maintained between this office and the Forest Research Institute, Dehra Dun, in the matter of supplies of timber for various tests carried out there, of specimens for indentification, etc. The tests are carried out under projects. The Forest Economist, Dehra Dun, prepares a plan of research work every year. Supplies of timber for projects I, II, VII and VIII were made during the year and the costs were borne by this office, as was agreed upon in the Utilization Conference of 1922. The cost of supplies made and other particulars are furnished below in a tabular form :—

Projects.	Names of species.	Wherefrom supplies made.	Quantity.	Cost.	Date of supply.
			C. FT.	RS. A.	
I and II.	1. Adina Cordifolia ..	South Coimbatore Division.	289	264 9	March 1929.
	2. Terminalia tomentosa.				
	3. Calophyllum elatum..				
	4. Dysoxylum malabaricum.	Do.	330 and 9 Discs.	254 10	August 1928.
	5. Chloroxylon swietenia.	Vizagapatam. ..	5 logs of 3 to 5 feet girth.	Not yet supplied.	..
VII.	1. Eugenia Gardneri ..	South Mangalore.	747	441 12	December 1928.
	2. Dichopsis elliptica ..	Exploitation Division.	977	1,221 13	Dec. 1928 and Jan. 1929.
	3. Terminalia tomentosa.	Nilambur Division.	360	329 9	March 1929.
VIII.	1. Canarium strictum ..	Saw Mills and Extraction Division.	Each 1 log.	108 0	February 1929.
	2. Calophyllum wightianum.				
	3. Bischofia Javanica.				
	4. Cullenia excelsa ..				
	5. Dichopsis elliptica ..				
			Total .	2,620 5	

As regards Project VII (Kiln-seasoning), the Forest Research Institute is working through all the important Indian timbers and getting out charts of the optimum conditions for seasoning in drying kilns. It is reported that these are already being used largely by the Jubbulpore Gun Carriage Factory and the few others who have installed timber dryers. The object of this project is to demonstrate to timber users that the majority of Indian woods can be used for various purposes, provided, they are correctly seasoned first, and that it is unnecessary to specify teak for all purposes as at present. It is expected that the tests to be carried on Terminalia tomentosa, Eugenia Gardneri, and Dichopsis elliptica, will enhance their value and increase the demand for them. Logs of Terminalia tomentosa were asked for in January 1929, and they were supplied in March 1929.

The logs supplied for Project VIII, are for tests as to their suitability for Veneers and Plywood to be made into boxes and furniture.

The supplies of timber made for Projects I and II are for timber testing of small clear specimens and of constructional sizes, respectively.

Five logs of 3 to 5 feet girth were asked for by the Forest Economist, Dehra Dun, in November 1928, for test under Project I, as he was unable to obtain logs bigger than about 1 foot girth. As logs of the required girth are found available in Vizagapatam, the supply has been arranged from there. The supply will be made during the current year.

Project IV: *Air Seasoning Experiment of Sleepers at Pollachi.*—This work was entrusted to Mr. Benjamin, Forest Utilization Ranger, who carried out the necessary work, as per instructions contained in Project IV. The Experiment was concluded by Dr. S. N. Kapur, Officer-in-charge, Seasoning Section, Dehra Dun. He visited the place with Mr. Dwaraka Pershad, Lower Grade Assistant, with a kiln-operator and a kiln attendant, on 7th April 1929, and recorded the final observations laid down in the experiment. As the experiment is completed the 272 broad gauge and meter gauge sleepers were ordered to be auctioned. The results of the experiment are not yet to hand.

Tests of sleepers at Guindy —The results of the tests from Guindy, which were forwarded to the Imperial Forest Economist early in May 1928, were received back with his remarks, in February 1929. These were sent again to the Guindy College and they are now with the Principal.

Pæciloneuron indicum.—Logs of this species for trial for golf shafts and fishing rods could not be supplied this year, as the area in which it occurs, was not reached by the Extraction Party. The supply will be made during 1929–30.

As the Madras and Southern Mahratta Railway were very keen to see how this species would serve as sleepers, 15 broad gauge sleepers were sent to Dehra Dun for 'preliminary tests' under Project IV. A complete report is not yet available, as strength, hardness, spike pulling tests, etc., remain to be carried out. The experiments carried so far, on preservation with antiseptics, have proved to be satisfactory.

Timbers supplied for Exhibition in the New Museum, Dehra.—A short summary of remarks on the merits of the Madras timbers supplied for the exhibition, was obtained during the year. It is very interesting and is given below :—

"Short notes of opinions formed on the several Madras timbers which have been through the shops both for museum exhibition work and for timber testing projects ;"

1. *Gluta Travancorica.*—This timber was made up into a semi-circular book and file cabinet and was also used in conjunction with the Burma *gluta* (*G. Tryanva*) in the making of a carved exhibition sidebroad. The timber works well, without any special workshop features having to be introduced. It also carves easily and cleanly and lends itself to an excellent spirit polish finish. Unfortunately, however, the consignment of this timber received from Madras gave heavy making up losses as the planks were short, narrow, waney and cracked. This, it is hoped, is the exception, as the timber is unquestionably a fine cabinet and furniture wood.

2 *Dalbergia latifolia.*—Part of this consignment was made into a small dining table which turned out extremely well, the working costs comparing favourably with those of teak. The percentage of waste in making up was low. This timber is without doubt excellent for furniture fitments, and general utility work. It will also peel and make up into a fine plywood, and the figure is such that quartered match effects can be obtained with judiciously cut veneers.

3. *Acrocarpus fraxinifolius.*—It is regretted that the consignment of planks received here were badly cracked, off colour and useless for exhibition. The planks were however used in the making of a store cupboard for petrol tins. Unless the planks received here were not fair specimens of the quality of this timber it is doubtful if the wood would be taken up by the cabinet trade for other than backing, studding or something of that kind.

4. *Hopea parviflora.*—Is being made up into a small exhibition table. This stuff has a nice close grain, turns beautifully and can be brought up to an excellent spirit polish finish. The timber appears to be very suitable for furniture, and I should say it would both look well and stand up well as a parquet floor. *Hopea parviflora* should also be useful for interior fitments and possibly certain parts of railway carriage construction.

5. *Terminal'a tomentosa.*—(Laurel) has been used in the making of several exhibits including a fire screen, lamp stand, seat crub, and a very handsome carved writing table. This timber was of a fine rich colour which stands out well when made into good class furniture. As is usual with this wood, however, we experienced some little trouble from cracking in timber over 3 inches thick, the carved legs of the writing table having to be made up twice before assembling the job. Since assembly and during the last four months the legs have again slightly opened. The drawers, which were originally a perfect fit, have been eased twice in the same period. Except for this defect the timber worked up well at a cost equivalent to that of teak working costs. A reciprocating frame saw with a good stiff medium gulleted hardwood tooth gave good conversion results.

6. *Mahagony* from Nilambur, Madras, though slightly interlocked, peels well and makes up into a fair plywood panel of not over ornamental figure. It stands up well under both water and mechanical tests. If this timber is available in commercial quantities at the right price, it would, in my opinion, be worthy of further consideration. A carved dining room side table was made from this timber which though very light in colour when newly made up, has toned down and richened considerably. Mahogany presents little or no difficulties in working up and appears to be very suitable for furniture work.

7. *Bischofia javanica* (bishop wood).—Bishop wood though containing a gritty substance (possibly resin) which makes the timber a little hard on fine edged machine tools, compares favourably with teak in the matter of working costs.

The colour is somewhat against this timber for furniture and cabinet making, but it should be suitable for constructional work and possibly parts of railway carriage building.

This wood can easily be brought up to a decent paint and varnish finish —not suitable for turnery work.

8. *Dysoxylum malabaricum* (white cedar).—A fine clean light coloured timber which when cut tangentially presents a fine mottled figure. The stuff is easy to work up to a good finish and will take a fine polish without preliminary filling. Should make up into good furniture and fitments and appears to be the type of timber suitable for bus and motor-car constructions and interiors.

9. *Terminalia paniculata* (kindal).—Kindal, in plank form, is subject to body and end cracks. Fibres are often interlocked and unsuitable for taking heavy guage screws near the ends of planks, even when bored.

We have had trouble with seasoned kindal swelling and shrinking abnormally during various seasons.

The timber requires no special machine feature and works up to a fair finish quite easily. Not suitable for furniture but would probably do quite well for certain classes of constructional work, agricultural implements and a grade of plywood suitable for tea chests, if not too heavy.

10. *Vateria indica* (white dhup).—Easy to work up to a fairly decent finish under ordinary workshop conditions, not ornamental and therefore not suitable for better class furniture. This wood is open grained and not the type to take a polish. It could be varnished on top of a couple of coats of paint.

If treated with a preservative, this timber would be suitable for panel backings or work of like description or could be used in unseen jobs, such as drawer bottoms, backs and sides, etc. Would peel for cheap plywood and may possibly do for matches.

11. *Grewia tiliæfolia.*—A close-grained hard timber with plenty of life in it, straight grained, not difficult to work, but a little hard on high-speed cutters. A small amount of back bevel on plane knives and cutters is recommended; rather heavy and not sufficiently ornamental for furniture making. Working costs should not be in excess of teak or sal.

12. *Alstonia scholaris*—was tried out at a moisture content of approximately 10 per cent. This specimen has been attacked by some form of pinhole borer which had eaten well into the heart of the timber; the resultant holes had taken up moisture, causing black stains.

The timber is soft and easily worked but does not appear to be durable.

Not suitable for good furniture and fitments but may be useful for making cheap brush backs, light packing cases, model-making, toys, light dry coopering, matches, pattern-making and shingles (if treated).

The mahogany supplied is now being identified.

As a result of the various species supplied to Dehra for tests and exhibition, the Imperial Forest Economist has directed to us some enquiries for timber.

Identification.—To identify the *mahogany* supplied from Nilambur for exhibition in the new meuseums, botanical and wood specimens of the two varieties of mahogany occurring in that division were collected and despatched to Dehra in May 1929. They are now under examination.

At the suggestion of the Chief Conservator of Forests, Madras, wood and botanical specimens of the commoner species of *Amoora* and *Aglaia* were arranged for collection from Tinnevelly forests. The specimens of the latter were despatched to Dehra in November 1928, while the former species has not as yet been identified by the Range officer, Kanhikutty Range.

In December 1926, a *specimen of a perfumed wood from Tripoli* was received in this office through the Chamber of Commerce, Madras. It was forwarded to Dehra Dun for identification. It resembled that of *Lansium anamalayanum*. There was no such specimen at the Forest Research Institute and so the supposition could not be confirmed. Wood and botanical specimens of *Lansium anamalayanum* were needed by Dehra. Specimens supplied in August 1927 were found to be not that of *Lansium anamalayanum*. The collection of the specimens was again arranged with the Forest Engineer-in-charge, Exploitation Division, during the year under report and were despatched in May 1929. If the investigations that are now being carried out prove this species to be identical with that from Tripoli, then there will be a good market for this timber.

Specimens.—A fair quantity of wood specimens was distributed to enquirers both in India and abroad. The samples were supplied free to those who needed them from a business point of view.

Twelve pieces of *Grewia tiliæfolia* for trial as pick handles were supplied to the Indian Trade Commissioner, London, in September 1928, and they are now reported to be under trial.

Samples of *Rosewood, Indian laurel* and *Poon* were despatched to the Western Paint and Varnish Company, Duluth, U.S.A., for their exhibition of various woods of the world for interior finishing, with a view to developing some business in the United States. They were also requested to refer any enquiries they might receive to the Forest Utilization Officer, Madras.

No report on samples of *Anogeissus latifolia* supplied to the Indian Trade Commissioner last year for test as to their suitability for pick and shovel handles has as yet been received. We are, however, told that the firm to whom the samples of axle-wood were submitted for trial were very much occupied with business and that the report would be forwarded to us as soon as available.

The supply of a *sample consignment of Cullenia excelsa, Dichopsis elliptica,* and *Calophyllum tomentosum* logs was arranged to be made at cost price to the Western Indian Match Company, Madras, for trial as matchwoods during March 1929. The supply was made in May from Olavakkot.

Mr. Rudolph Block of New York is making a collection, upon a scientific basis, of the interesting woods of the world, in the form of walking sticks, as a medium for presenting the varieties and beauties of the species. He has collected up to now 1,400 sticks of different woods of the world. He was very desirous of obtaining a specimen wood of *Pleurostylia wightii* in 1927, as he could not get a scientifically identified specimen from elsewhere. The supply was made from *Vizagapatam* in January 1929, and the actual costs incurred were paid by Mr. Block.

As he was also anxious to obtain specimens of the ornamental and rarer woods that are found here, that were not included in his collections, he wrote to us in 1926. After some correspondence with him and Dehra Dun, a sample each of (1) *Acrocarpus fraxinifolius*, (2) *Calophyllum tomentosum*, (3) *Dysoxylum malabaricum*, (4) *Grewia tiliæfolia*, (5) *Lagerstromia lanceolata*, (6) *Pterocarpus marsupium* and (7) *Xylia xylocarpa* were despatched to him from Olavakkot during May 1929, as these species were not found in his latest list of collections.

Publications—Volume Tables.—The compilation of this work was done by Mr. Master. Out of the two clerks sanctioned for two months, only one was actually employed for under three months. The Volume Tables are now under fair print. Subsequently, at the suggestion of Mr. Richmond, Chief Conservator of Forests, Madras, the Preface to the Volume Tables was altered and some notes and instructions were also added. They have been submitted to the Chief Conservator of Forests for approval and will be forwarded to the Press on receipt.

The object of this work is to prescribe a common and ready method of calculation of round timber volumes, suitable to the Madras Forest Department, for adoption in all its depots.

In this connexion, the co-operation of Mr. Gilbert, Superintendent, Government Press, Mount Road Branch, is very much to be appreciated.

Market Report.—Early during the year, Mr. Master, the then Forest Economist, toured over all the important timber business centres of the Madras Presidency and West Coast with a view to study the market conditions, species most in demand, sizes, sale prices, uses and other technicalities of the timber trade. He interviewed many merchants and has written a very useful and interesting report, which will shortly be printed for the use of the various District Forest Officers and Conservators.

Cellizing.—Government have been addressed to sanction a project for the testing of cellizing process on our varied hardwood timbers for two years. This process, if not too costly, will have a tremendous influence in the uses of tropical hardwoods, now often little used on account of difficulty of seasoning them, their liability to quick decay in a tropical climate and to the attacks of termites. In other words, if practicable, this process would enable us to supplant teak and a few other superior timbers which are now growing scarce with other cheaper timbers.

Messrs. E. L. Bruce & Co., Memphis, U.S.A., the owner of the patents, have been addressed in January for the use of the patents on a non-commercial scale. Their reply is awaited.

Wood workshops at Olavakkot.—The construction of the workshops was completed during the year and work is now in progress there. Mr. Dawson, Forest Engineer-in-charge, Exploitation division, is in charge of the workshops. The object in running this shop is for establishing new uses for Madras timbers. Various articles of furniture, etc., were turned out in the shops and they were exhibited at Madras during the Park Fair and Exhibition, 1928–29. Some of the less known species, to which no particular uses have been prescribed, have been ordered to be tried for furniture.

Park Fair Exhibition, 1928–29.—This is an annual carnival held during the Christmas holidays, under the auspices of the South Indian Athletic Association, Limited, in the Presidency town and people attend it in numbers. This year we had the Wood Workshop working and we wished to

exhibit those products. The exhibit was intended to show the products being turned out in the Experimental Wood Workshop and Saw Mill at Olavakkot with a view to establishing the uses and qualities of local timbers. As the exhibition tended to bring us in contact with several sections of the public who were not familiar with our activities, we participated in the Exhibition with Government sanction; and Mr. Dawson, Forest Engineer, Olavakkot, was put in charge of the work. He came over to Madras with the exhibits and made the exhibition a success. Many of the exhibits were sold on the grounds and Mr. Dawson was able to canvass several orders for timber during the Exhibition.

The Economist's work is kept up and supplies of logs and samples to Dehra, etc., are arranged more promptly than had been possible in the past. The clerk's work under the supervision of the head clerk of the Chief Forest Engineer's Office has been very satisfactory.

The statement of costs of tools, etc., is appended hereto.

Experimental Wood Workshop.

The following is the report by Mr. E. S. Dawson, I.F.E.S., Forest Engineer-in-charge, Exploitation Division, Olavakkot:—

"The Experimental Wood Workshop was installed with a view to experimenting with various timbers for tool handles and furniture and for utilizing waste pieces from the Olavakkot Saw Mill.

The erection was completed at the end of March 1928, but it will be some time before regular work can be started as it is necessary to try out the market with various items of furniture to see in what direction the demand lays before proceeding to manufacture anything on a large scale.

Also we have to observe some of the timbers under various climatic conditions before we can be certain that they will be suitable for the purposes for which they are being tried."

Acrocarpus fraxinifolius has been found to be very satisfactory for door frames and the styles and rails of doors, but reacts to climatic conditions too easily in board form owing to the open grained nature of this timber to ever be a real success for panelling work. The colour which is a sort of salmon pink rather goes against it for a furniture wood, unless it is stained some other colour. It works easily, however, and is suitable for chairs and small teapoys.

It is a timber which will no doubt be used more extensively for building purposes in the future than it is at present as it is fairly light and strong. It will also be suitable for three ply wood.

Albizzia odoratissima has also been tried for furniture and found to be fairly satisfactory provided that it is well seasoned. It is rather too open grained, however, to be an ideal furniture timber, but it is not difficult to work and will stand up all right in almirahs and dressing tables providing that it is well varnished. It is not difficult to get nicely marked boards and it looks very attractive when it is made up. Would make a very fine veneer wood except for the presence of pin knots which occur rather too frequently for high-class work.

Nauclea purpurea has also been tried for furniture with satisfactory results in small articles but is not recommended for panelling work.

Lansium anamalayanum has been found just as satisfactory as *Dysoxylum malabaricum* for all furniture purposes and it requires an expert to tell the difference between the two timbers when they are made up. *Lansium anamalayanum* is somewhat softer than *Dysoxylum malabaricum* and slightly more open grained but it gives off the same pleasant cedar smell and is practically as durable.

Stereospermum xylocarpum has been tried extensively for office chairs, tables and desks and has proved particularly good. It is a moderately hard timber and takes a good polish. The light colour is rather against it for more high class furniture.

Calophyllum tomentosum.—Wide boards are easily obtainable in this timber which is fairly straight grained, soft, easily worked and takes a good polish. Cheap furniture is being experimented with in this timber and will doubtless prove satisfactory in fairly dry localities. It is a very attractive wood and will be suitable for three ply work and a certain class of veneer work. At present there is a large demand for it for motor-bus bodies for which it is ideally suited on account of its lightness and strength.

Grewia latifolia (tiliæfolia).—This timber has now become firmly established on the market for general building purposes. It is in demand largely for gun carriage poles on account of its strength and elasticity. Tool handles have also turned out satisfactorily and the wood turns and works easily. It is very close grained, takes a good polish and is suitable for small articles of furniture. It is not readily attacked by white-ants.

Terminalia tomentosum (Indian laurel).—This timber has been tried in various articles of furniture. It is extremely hard to work but it takes a very fine polish. It does not stand up very well in the solid in large articles of furniture in the Malabar climate and its real use is obviously as a high class veneer wood in European countries. Figured logs in this timber are in great demand at present for overseas shipment.

Hemicyclia Elata has also been tried and found to be excellent for tool handles.

Wrightia Tinctoria and *Adina Cordifolia* have proved the best timbers for turnery purposes so far, for making penholders and trinket boxes. Both timbers can be lacquered easily.

Terminalia belerica.—The find of the year is considered to be Terminalia Belerica as a tool-handle wood.

It is almost as good as Grewia for this work and once it is established on the market will provide a use for thousands of cubic feet of this timber which up to the present has practically been regarded as useless and left to rot in the forest. In fact this information alone is worth much more than the 15,000 rupees which Government have spent on installing the Experimental Workshop.

Poliyalthia fragrans.—This is a light white timber which works easily and has been used extensively at Olavakkot for box shooks. Samples have been submitted to Jubbulpore for flag signalling poles and found to be very satisfactory for replacing the deodar and ash poles used previously.

It will be an ideal timber for three ply work and also for paper-pulp and should be encouraged to grow naturally if possible or planted artificially if necessary.

Timbers suitable for the above mentioned two industries and also for high class veneer work will be much more in demand in 25 years' time than *Mesua Ferrea* and *Hopea Parviflora* which are two of our best timbers at present but used almost exclusively for sleepers. They are both difficult to grow artificially, however, and now that the steel sleeper is rapidly replacing the wooden sleeper in India it seems futile to try and grow them at all, even for building purposes. Rolled steel joists are being used now where heavy wooden beams were used previously and neither *Mesua Ferrea* and *Hopea Parviflora* will prove popular in the future for building purposes on account of their excessive weight. Many of the timbers suitable for three ply work, paper-pulp and veneer work which are comparatively easy to grow are considered to be of little value now because these industries have not yet reached India.

But it is interesting to note that nearly half the world's supply of timber last year was utilized by the above three industries and this fact should be kept in mind when planting trees for the future.

The cost of the Experimental Workshop for the first year, i.e., 1928–29, is attached.

Chenat Nair Exploitation Experimental Workshop expenses for the year ending 31st March 1929.

	Rs. A. P.	Rs. A. P.		Rs. A. P.	Rs. A. P.
To cost of timber taken for manufacture, 1,090-4-00 cubic feet	1,542 15 0	1,542 15 0	By sale of furniture and manufactured articles	4,127 7 6	4,127 7 6
To Expenses—					
Salary of Forest Engineer and Mechanical Expert	2,400 0 0		By stock on hand, Timber 358-1-6 cubic feet	537 2 0	
To Salary of Establishment	345 6 8		Manufactured articles	1,334 5 0	
Wages	954 1 3				1,871 7 0
Manufacturing expenses	1,086 13 6				
Petty purchase of stores used up ..	662 11 0				
Fuel used	246 6 0				
Loss on revaluation in tools	41 7 0				
		5,736 13 5			
To Depreciation on Machinery	571 9 6				
Do. Buildings	233 13 3				
		805 6 9			
To Share of Chief Forest Engineer's supervision	600 0 0	600 0 0	Loss on working	..	3,415 12 8
To Interest on Capital	729 8 0	729 8 0			
	Total ..	9,414 11 2		Total ..	9,414 11 2

E. S. DAWSON,
Forest Engineer, Olavakkot.

Park Fair Exhibition, 1928-29.

Report of E. S. Dawson, Esq., I.F.E.S., Forest Engineer-in-charge, Exploitation Division, Olavakkot.

It was decided to exhibit some of the products from the Experimental Wood Workshop at Olavakkot in addition to the various species of timber which are to be found in the Madras Forests.

A very keen interest was evinced by many timber merchants in some of our junglewoods, particularly Grewia and poon, which are not used extensively on the East Coast as yet. In fact owing to the thousands of people who passed through the booth every day during the afternoon and evening it was impossible to deal with all the enquiries.

While people were moderately interested in our ordinary country wood boxes and box shooks there were many more enquiries for boxes and chests made of three plywood and the general indications are that there would be a ready market for this commodity if we were in a position to supply it.

The general public were also interested in the camp furniture made in the Experimental Workshop at Olavakkot and practically all the exhibits taken up to Madras were sold. In this connexion it was noticed that there was very little demand for teakwood furniture provided that rosewood was available. Also white cedar and other light coloured species did not sell readily as opposed to the darker species. The camp rocking chair and the Roorkee chair appeared to be the more popular and were taken in preference to the camp folding chair and the ordinary deck chair. These points have been carefully noted for future reference.

It was apparent that all the products of the Experimental Workshop at Olavakkot would find a ready sale if only they are sufficiently advertised.

The only way in which this could be done would be to have a small show-room in some prominent place in Madras, or else get some well-known business firm to exhibit our goods for a fixed annual charge. A little later when the work has become more standardised a catalogue might be got out to advantage.

As a result of the exhibition this year orders for poon planks for motor-bus bodies from various firms amounting to over Rs. 25,000 annually were secured. Other important orders secured were poon for the Executive Engineer, Dowlaishweram, for constructing rafts, and karimarudu logs for Mr. David, Ceylon. Altogether over Rs. 30,000 worth of business was transacted and there is considerable scope for acquiring plenty of orders.

The ground acquired for the Forest booth this year, although larger than the previous year, was not nearly large enough for the exhibits to be properly displayed and it was found impossible to deal with enquiries and book orders satisfactorily with a large crowd surging through the booth all the time.

I would recommend, therefore, that a large area be acquired next year which will give sufficient room for a space to be set apart for an office where orders and enquiries can be dealt with. Also a larger staff of attendants will be required to regulate the crowds of people who pass through the booth and answer minor enquiries.

Only subordinates with a thorough knowledge of our various timbers are of any use.

I particularly want to thank Mr. Ramunni Menon, Ranger, Mr. Visvanatha Ayyar, Curator of the Forest College, and P. Kumaran, Accountant, for the hard work which they put in to make the Exhibition a success. These men had to give up the whole of their Christmas holidays and had to be in constant attendance at the stall from 8 a.m. to 10 p.m. daily."

V.—Forest Engineer, Madras (Construction) Division.

The Capital works undertaken by this division decreased largely during the year due to the completion of the programme for residential buildings and of the last of the major road construction projects.

As the amount of this type of work decreased, Capt. H. A. Irwin, on the completion of his agreement with the Forest Department, was transferred to the Mettur Project and the remaining work was very competently carried out by Mr. VanHaeften.

This work has since been amalgamated with that of the Chenat Nair Commercial Concern under Mr. E. S. Dawson, Forest Engineer, Madras.

Administration Report of the works under the Forest Engineer, Madras, for the year from 1st April 1928 to 31st March 1929—

Officers-in-charge of the Division during the year were—

(1) Captain H. A. Irwin, M.C., Forest Engineer, 1st April 1928 to 10th August 1928 Afternoon.

(2) C. J. VanHaeften, Esq., B.SC., Acting Forest Engineer, 10th August 1928 to 31st March 1929.

The works carried out during the year were—

(1) *Construction of a District Forest Officer's quarters at Chittoor, Estimate Rs.* 20,000.—This work was started late last year and about Rs. 2,000 was spent in that year. The work was completed within the year. Due to economy, it was found possible to do certain extra works not provided for in the estimate, such as a staircase, double-doors to the halls and dining rooms, etc.

The building was handed over to the District Forest Officer on 16th April 1929. The expenditure on the work was Rs. 21,861-13-2. Government sanction has been applied for an additional allotment of Rs. 2,130 to meet the excess cost of land acquired. The provision for this item in the original estimate was only Rs. 200.

(2) *Construction of District Forest Officer's quarters at Vellore, Estimate Rs.* 23,000.—The work was sanctioned early in the year, but was not started until September 1928 as a claim preferred by some Muhammadans in regard to two tombs on the site had first to be settled by the Collector.

Once started, rapid progress was made on the work and by the end of the year the masonry in the main building had reached roof level. When the work was in progress the District Forest Officer proposed an upstair room in place of 2 rooms in the out-houses. His proposal was supported by the

Conservator. The matter was referred to the Consulting Architect to Government who finally decided on that the walls and foundations provided for in the estimates were not sufficiently strong to admit of a room in the upper story. Pending his decision, work on the outhouses was held up.

The work has since been transferred to the charge of the District Forest Officer, Vellore, under orders received from the Chief Conservator of Forests. The expenditure on the work during the year was Rs. 18,804-9-6.

(3) *Construction of a District Forest Officer's quarters at Olavakkot, Estimate* Rs. 18,000.—This work was sanctioned in G.O. Mis. No 550, Development, dated 27th March 1928. The work was put in hand in May and completed within the year. The building was handed over to the District Forest Officer early in April 1929.

A small area of land required for the well has yet to be formally acquired. The land itself was entered upon with the permission of the owner and work in it completed. Information as regards the actual cost of the land has not yet been received from the Revenue Department.

The expenditure on the work during the year was Rs. 16,474-7-0. The cost of certain wood, etc., has been adjusted in April 1929.

(4) *Construction of a road from Chedleth Saw Mill to Chedleth, Amount of Estimate* Rs. 35,000.—This estimate was sanctioned in G.O. Mis. No. 552, Development, dated 23rd March 1928.

Arrangements were made to start the work in April.

On account of dearth of local labour, the labour required had to be recruited from Palghat and other places. Owing to the locality being very malarious great difficulty was experienced in keeping these coolies on the workspot for any length of time. Fresh gangs had therefore to be frequently recruited.

Only stone slab culverts were provided for in the original estimate, but in place of eight of these armco pipes have been laid.

The work was completed within the year and handed over to the District Forest Officer on 30th April 1929.

The following survey works were done during the year :—

(1) Investigation of roads from Topslip to Sungam and Topslip to Kariansholа.

(2) Investigation of a road to Ulandi Saddle.

(3) Investigation of roads in Silent Valley.

All these alignments have been inspected by Chief Forest Engineer and orders have been issued that levels be taken and detailed estimates prepared.

The following estimates were submitted during the year :—

(1) Construction of ranger's quarters at Beypore, estimate Rs. 3,000.

(2) Fixing a windmill to the well in the District Forest Officer's quarters at Mangalore, estimate Rs. 3,000.

(3) Extension of Anaipadi-Topslip Road, estimate Rs. 8,000.

(4) Construction of Topslip-Sungam Road, estimate Rs. 11,500.

(5) A rough cart-track from Topslip to Saddle in Karianshola, estimate Rs. 8,750.

(6) Construction of a road from Chellimalai to Patrakad, estimate Rs. 60,000.

(7) Road bridge or bridges over the Karianpuzha river near Nedungayam in Nilambur, estimate Rs. 1,00,000.

The maintenance of the Amarampalam-Anaipadi Road was handed over to the District Forest Officer, South Coimbatore, on 1st June 1928, as also the maintenance of the telephone line from Pollachi to Anaipadi.

(General)

The following officers and subordinates were working during the year :—

(1) Mr. C. J. VanHaeften, Extra-Assistant Conservator, was engaged in supervising works at Olavakkot and Investigation works at Silent Valley, Topslip, etc., till he took charge of the division on 11th August 1928.

(2) Mr. K. P. Chatthu Nayar, was in charge of Chedleth road work which he completed satisfactorily.

(3) Mr. H. Myers, Ranger, was in charge of the Investigation works at Topslip and Silent Valley, after the Amarampalam-Anaipadi road and the telephone lines were handed over to the district. The alignments were done satisfactorily.

(4) Mr. C. S. Ramanathan, Ranger, was in charge of the construction of the District Forest Officer's quarters at Chittoor and Vellore. Both works have been carried out satisfactorily.

(5) Mr. C. Sridharamannadiar, Forester, was in charge of the construction of the District Forest Officer's quarters at Olavakkot. The work has been completed satisfactorily.

(6) Mr. Sheik Muhammad, Forester, was employed in assisting Mr. K. P. Chathu Nayar on the Chedleth Road. He died on 1st August 1928 of severe malaria.

The office establishment consisted of 1 Accountant and Manager, 2 clerks, 1 typist and 1 tracer.

The two clerks' posts have been abolished as per orders of the Chief Conservator of Forests with effect from 1st May 1929.

A statement showing the expenditure on all works in Form Nos. 70 and 85 are enclosed.

VI.—Saw Mill and Extraction Division.

While considerable new work was turned over to this division during the year general progress was made.

The congestion of carting at Parappa and Chedleth was removed and costs of operation were reduced in all activities except in the case of the Pollachi–Topslip Saw Mill which was moved during the year and where special conditions existed which seriously affected its working.

The division is still seriously hampered by having to keep two entirely separate sets of accounts, one of them entirely hypothetical which does not present the true financial condition of the concerns. In all, sixteen sets of separate accounts have to be kept.

In addition to this the office work is continually upset by the visits of auditors. During the first five months of the current year, for three months auditors were in the office and current work could not be kept up. This condition of affairs is entirely unnecessary and also adds excess charges on to the accounts of the concerns without any resulting benefit.

2. *Central Stores.*—This section has worked very satisfactorily during the year and has proven to be an undoubted economy to the concerns which it serves.

3. *Beypore Saw Mill.*—While a smaller quantity of logs was converted during the year, sawing costs were reduced by over 2 annas per cubic foot and the average selling price for the outturn increased by over 2 annas per cubic foot. The selling price is now over Rs. 3-5-0 per cubic foot as against Rs. 2-10-0 in 1926-27 and Rs. 3-2-0 in 1927-28, an advance of over 11 annas per cubic foot. This shows the value of gradually working up the sale of *graded* sawn material. During the same period teak log prices have increased by 7 annas per cubic foot due largely to the selling of logs by grades and to the removal of the inferior grades from the market.

4. *Pollachi-Topslip Saw Mill.*—This saw mill, alone of all the activities of the division showed a poorer result than for the previous year. This was due to the dislocation caused by the move; to an exceptionally bad fever season at Topslip which caused crew after crew to run away or left the few men remaining too weak with fever, or too few in numbers to run the mill; and to the inefficient control exercised by incompetent foresters and foremen in charge of the mill.

Fortunately, these disabilities have now been overcome and the mill is fast approaching the efficiency of the other saw mills and will make a very decided improvement during 1929-30.

It is a surprising thing that while log prices have advanced 5 annas per cubic foot to an average of Rs. 1-12-0 for 1928-29 due to the removal of old surplus logs stocks and to the careful regulation of sales, the price for sawn material has declined until on an average only 2 annas more per cubic foot is received for sawn material than is obtained for the better class logs.

Only 38,543 cubic feet of logs were sawn by this mill as against 65,394 cubic feet during 1927-28. This smaller intake accounts for the increase in the cost of sawing. The conversion percentage increased from 30·8 per cent to 34·9 per cent but is still the lowest of any of the saw mills and is due to the very poor class of logs consumed. These logs are measured without allowances being made for defects which is bound to make the mill costs high.

5. *Chedleth Saw Mill.*—While the costs of sawing at this mill have improved by 2 annas per cubic foot during the year the intake of logs decreased from 51,848 in 1927–28 to 41,084 cubic feet. The percentage of conversion increased from 27·7 per cent to 37·1 per cent.

Here as at Topslip conditions have improved immensely and the mill is now approaching normal efficiency.

The striking thing about this mill is the fact that the prices received for material other than teak at Nanjangud are very much better than those received for similar material in the Madras Presidency. This also seems to be the case with regard to log sales.

6. *Parappa Saw Mill.*—This mill continues to be the spot mill of this division. Costs were again reduced during the year by over 4 annas per cubic foot. The intake of logs was increased from 64,683 cubic feet to 82,618 cubic feet and the outturn percentage increased by 4 per cent.

7. *Kal Ar Valley Sleeper extraction.*—The profits on this operation have considerably increased. The number of sleepers produced only increased from 12,680 to 12,718, but 751 *kolmarams and chattams* were extracted in addition to the sleepers.

8. *Nilambur Mechanical extraction.*—This operation was hampered by its late start which threw the entire programme of operations out of gear due to the fact that the machine can only be moved across the rivers from one field of work to another between monsoons. It was only able to put in about five months of effective work which seriously affected costs.

A more normal schedule of operation should be reached during 1929–30.

9. The report of the Forest Engineer in charge of the division follows :—

SAW MILLS AND EXTRACTION DIVISION—ADMINISTRATION REPORT.

During the year under review the work of the division has been increased by—

(*a*) Taking over from Utilization division the transportation of sawn outturn from Chedleth Saw Mill to the depot at Nanjangod.

(*b*) Taking over from Utilization division the transportation of sawn outturn from Parappa Saw Mill to Kasaragod depot.

(*c*) Care and maintenance of water-supply for Topslip settlement.

Staffs.—A fairly efficient staff of machine operators has been obtained for all mills, the majority of these men have started as coolies and worked their way up. There is no difficulty in retaining men at Beypore and Parappa, but in the case the Chedleth Topslip, few men, however well

paid, will remain after two or three attacks of fever. In many cases they become so weakened from fever that they are of very little use. The greatest difficulty is experienced in recruiting any kind of labour for either of these mills.

Charge.—The charge of the division was held as follows :—

W. F. Chipp, Esq., 1st April 1928 to 22nd June 1928.
6th November 1928 to 31st March 1929.

J. A. Wilson, Esq., 23rd June 1928 to 5th November 1928.

Office.—In October last Government sanctioned the two remaining posts required to complete the office staff.

2. After considerable delay in finding candidates with the necessary qualifications, both posts were filled and the work of overtaking the heavy arrears of various sections was commenced. At the close of the year much had been done, but to bring the work to a proper state of efficiency there is still leeway to make up.

3. Both Code and commercial accounts are maintained for all concerns. The office is inspected and test audited by the Accountant-General. The Assistant Director of Commercial Audit also quarterly audits all accounts. With two different audit staffs examining and perusing books and accounts, the office is more often than not being audited. These continued audits considerably interfere with current work, before the arrears of work caused by one audit can be overtaken another is due and so on, in this way the office work can very seldom be said to be up to date.

Central Stores.—During the year the stock of Tractor spares from the Chanat Nair Exploitation division was taken over, and the supply of all Tractor spares for both divisions is now made through this agency.

2. The stocks of all spares and stores maintained has proved adequate for all ordinary repairs and replacements. This method of supply has fully justified itself and caused a considerable financial saving to the various concerns who draw their supplies through this section of the division.

3. During the year various items in stock are often checked and at the final check and audit on 31st March 1929, it was found that there were no deficiencies.

On 1st April 1928 the opening balance of stores was Rs. 11,256-0-7.

At the close of the year the stock was Rs. 28,448-3-1. (Tractor spares Rs. 15,382-12-3.)

Beypore Saw Mill.—The remodelling of this mill during the previous year has fully justified the expenditure incurred.

2. In December 1927 a key press was ordered from Messrs. Marshall Sons & Co., Ltd., Madras, patterns of the keys required to be made, were forwarded to the Firm on 6th February 1928. The machine was received and erected on August 1928, it was then found that no index plate to the cutter blocks had been supplied by the makers. Also that, despite pattern keys having been sent, the carriage to receive the block of wood to be shaped for a key was 1 inch too short. Several other defects were found. The Firm sent their Engineer to examine the machine and he acknowledged it was not to specification. Various parts have had to be returned for alterations and at the close of the year these had not been received back.

3. The intake of logs was 86,090 cubic feet and the outturn 45,280 cubic feet with a final conversion of 52·6 per cent which considering the class of logs converted at the high standard of grade required in outturn is considered good. In addition to the sawn outturn 464 tons of slabs and rippings and 4,217 cubic feet odds and ends were obtained.

4. No railway sleepers were sawn during the year, the work being confined to special size orders and stock sizes.

5. The maximum working hours were 2,415, of which 2,358 hours were worked by machines, only 57 hours or 2·3 per cent were lost by breakdowns. Considering that two of these petrol engines are nearly ten years old, this is a creditable record for the staff.

Topslip Saw Mill.—This mill was moved from Pollachi to Topslip in March of last year.

2. The operators who had received a certain amount of training at Pollachi refused to work at Topslip and left shortly after the move. Operators from other mills when ordered to Topslip invariably resigned. A new staff had therefore to be trained, some months were taken up in obtaining suitable men and then more time in training them. Malabar men have proved the best type to train for machine work, but unfortunately they will not go to this district, and others had to be searched for. During the whole year this constant changing of men has taken place and it is only now after nearly a year's work that a passable crew has been got together.

3. The position of the supply of coolie labour for semi-skilled work has been more difficult than that for operators. The near-by plains men will only remain at Topslip for a limited period, and a further difficulty arises because they have not the slightest aptitude for this class of work and cannot learn even by constant repetition. Coolies were imported from other districts but these constantly ran away. A trial is now being made with some men from Cochin State but they are not a promising lot.

4. The mill also suffered by having two unsatisfactory and lazy foresters who did very little except complicate the very simple accounts. A forester is now posted here who has been tried and has done good work at another mill.

5 A Fordson engine and winch, transferred from Chenat Nair Exploitation division where it was no longer required, was erected in February. This engine will drive the re-sawing section of the mill and relieve the steam engine of this work. The whole of the machines required about 25 per cent more power than the steam engine could develop. This alteration has made a great improvement to the cutting speed of the machines. In addition the winch has been rigged to work a yarding cable by means of a gyn pole and logs from the farthest corner of the depot can now be fed to the breakdown saw without having to be moved by elephants or carts. In addition to effecting a considerable financial saving, it allows the mill staff to obtain any species or size of log required for the mill within a few minutes of the need arising.

6. An experiment was made in altering the length of the Bolter machine to allow longer pieces up to 17 feet to be re-sawn. This has proved most successful and increased the utility of this machine by 50 per cent.

7. The Super-Sentinel Steam Engine has given a considerable amount of trouble ; this has been chiefly due to the fact that the machines required about 40 per cent more power than the maximum developed. Several new tubes have had to be fitted and the firebox rebuilt. With the installation of the Fordson (paragraph 5 above), the position has been considerably improved.

8. The in take of logs was 38,543 cubic feet and the outturn 13,408 cubic feet giving a final conversion figure of 34·8 per cent. In addition, slabs and porotes were obtained.

9. The maximum working hours were 1,827 of which 1,788 were worked. The work during the year has been most unsatisfactory due to the causes beyond our immediate control. With the alterations and additions carried out at the close of the year, it is confidently expected that a big improvement will be effected in the coming financial year.

Chedleth Saw Mill.—At the close of the year it was found that the majority of the operators had become practically useless through constant attacks of fever. The whole of the badly infected men were got rid of and replaced by surplus men, from the discontinued shift at Olavakkot Mill, who have continued to work in the mill during the year.

2. The last of several useless foresters was got rid of and the post temporarily filled by a Range officer who has had a most difficult task in rectifying the timber accounts incorrectly kept by two successive foresters.

3. The transport work of sawn outturn to Nanjangod was taken over from the Utilization division in October, and the long-standing accumulation of over 20,000 cubic feet was transported to Nanjangod before the end of December. Considerable delay and trouble arose in getting receipts from the depot for what had been delivered, but as soon as this had been cleared up the final results of the census, carried out by Mr. Mathew, Assistant Conservator of Forests in March and April 1928, were completed and the accounts compiled correctly up to date.

4. Considerable repairs and renewals were necessary, caused by a number of incompetent operators who had from time to time been employed. These were carried out and the in take raised to over 6,000 cubic feet per month at the close of the year.

5. The supply of coolie labour has improved and if the present men can be retained should not cause as much trouble as in previous years although owing to the mills' isolated position it will always be a difficult problem to maintain an adequate and useful labour force.

6. The majority of the old useless logs had been either converted or disposed of at the close of the year. The new stock delivered was of a much superior grade and from such, a fair percentage of outturn can be expected.

7. The in take was 41,084 cubic feet and the outturn 15,249 cubic feet with a final conversion of 37·1 per cent. Considering the quality of the logs this percentage is satisfactory.

8. The maximum working hours were 2,261 of which 2,078 were worked, the mill was idle for nearly one month during the change of operators.

9. During the year the health of everyone has much improved, the work of the compounder has proved most efficient and the average time lost due to sickness has been greatly reduced.

Parappa Saw Mill.—This mill has worked constantly during the year under review. Practically no changes have occurred amongst staff or operators. An ample supply of fairly useful coolie labour is available.

2. To complete the thorough conversion of slabs an additional Rip Bench was added, this has enabled much closer conversion to be made and the percentage of outturn increased by 4 per cent.

3. The work of transporting outturn from the mill to Kasaragod was taken over from the Utilization division in October and all arrears cleared up by December.

4. The sale of porotes and ripping of teak species is satisfactory, but very little demand exist for waste of other species.

5. The in-take of logs was 82,618 cubic feet and the outturn 38,572 cubic feet giving a final conversion of 46·7 per cent.

6. The maximum working hours were 2,463 of which 2,431 were worked.

7. The work of the mill for the year was most satisfactory.

Aletii Crossing—Temporary Bridge.—A temporary removable bridge was constructed over the Paiswani River at Aletti, the total length being 180 feet in 12 spans.

2. The bridge is constructed in sections and can be laid or removed by a few days work.

3. A full note giving the details, etc., was submitted by Mr. J.A. Wilson, Deputy Conservator of Forests, on 16th May 1929.

Kal Ar Valley Sleeper Project.—The work of sleeper extraction proceeded along the north side of the Valley, the yield remaining fairly even until the junction of the Nal Ar with the Kal Ar was reached; from this point eastwards it becomes gradually less and it is proposed to cease work about 2½ miles from the junction of these streams where the yield will not justify any type of road and the dragging becomes too expensive to extract it at a profit.

2. The soil formation cart road has now been completed for about 3½ miles and only about 400 yards remains to be made in the next year. At present it is proposed that this road shall terminate at this point as the yield further up the valley will not justify a cart road.

3. It is estimated that there is sufficient yield on the present working side of the valley to last until September or October next. After completing the north side arrangements have been made to continue on the southern side of the valley.

4. *Labour.*—The position has improved and sufficient sawers were obtained to complete the arranged programme.

5. The outturn during the year was 11,792 B.G. and 926 M.G. all of Mesua ferrea species and 251 kolmarams and 500 chattams of *Dichopsis elliptica.*

6. No advances were made to contractors and no bad debts were incurred during the year.

7. No contribution has been received from the Cinchona Department towards the roads constructed upon the area.

Nilambur Mechanical Extraction.—This section was formed for the mechanical extraction from the various Nilambur Valley Forests.

2. The equipment was purchased from the Coorg Forest Department and consisted of one Holt 40/60 10-ton Caterpillar Tractor with two drum attachment, various wire ropes, blocks and tackle.

3. The engine reached Nilambur at the end of March 1928 but owing to various delays the equipment was not received and work started until the middle of May.

4. A complete logging crew had to be recruited and fortunately a fairly good tractor driver was available but the whole of the remainder had to be recruited and trained. Local coolies were not the right type, and men were obtained from the Mannarghat district. To commence, a forester who had experience of Tractor yarding was loaned by the Chenat Nair Exploitation Division and afterwards replaced by a forester of this division.

5. The delay in receipt of the equipment threw out the entire programme of work and caused considerable expense in moving the tractor to other areas when the river was in flood.

6. By October the crew were becoming of some use, work began to improve and continued so until the areas on the right-hand side of the Nilambur river had been cleared up about the middle of December. It was then proposed to take up other work in the Nedungayam area but owing to changes in the programme of work the area was not ready. The result was that at the end of December the engine had to be laid up and crew discharged. This was most unfortunate as several months' teaching at considerable expense was thrown away.

VII.—Chenat Nair Exploitation Division.

The results of the past years' work again show a decided improvement and the concern is now not only paying for its actual cost of operation but is paying back to Government Rs. 53,257 in part costs of roads, depreciation on plant and machinery, etc. During 1929–30 the concern should return nearly a lakh of rupees to Government in such overheads and in addition be entirely self-supporting. As the gradual placing of sawn jungle woods on the market is a most important factor in improving the financial outturn of the Government forests, this saw mill is serving a most useful purpose and the benefits from such pioneer work will be increasingly apparent in the forest surpluses in years to come.

2. The Forest Engineer's remarks on the charges made to the concern for depreciation of permanent metalled roads are very much to the point as this charge is made on an asset that does not and cannot depreciate. Taking this charge which amounted to Rs. 29,287 and interest of Rs. 31,743 neither of which would be charged in actual commercial accounts the concern really made a net book profit of Rs. 15,544 during the year, besides which it carried Rs. 6,900 of the cost of the Chief Forest Engineer and his office; Rs. 6,196 of leave and pension charges, and paid Rs. 11,691 on depreciation of plant and machinery and running-in charges. Thus Government had a net gain, from the concern

during the year of Rs. 28,640 which it will lose when the plant is closed down; also as pointed out above this net gain to Government will be more than doubled in 1929–30 if the plant is permitted to operate for the entire year.

3. The changing values in forest produce mentioned by the Forest Engineer is a very important point to be considered in planning future forest policy. The use of lumber as such is fast being supplanted by its conversion into vaneers, plywood, paper-pulp and fabricated and built up lumber. This means that the forest growth of the future will consist largely of quick growing timbers which can be managed on short rotations. Of this growth every item will eventually be utilized from the natural gums and resins of the wood to the bark and twigs. Forestry will then become much more of a commercial function than it is at present.

4. The Wood Workshop is fully justifying itself and is producing valuable results at a very small net cost to Government.

5. The machine shop is cutting down our repair bills and reducing the time lost by breakdowns.

The Report of the Forest Engineer, Olavakkot, follows :—

ADMINISTRATION REPORT, 1928–1929—CHENAT NAIR EXPLOITATION DIVISION.

Introduction.—The forecasted improvement of the financial position of the Chenat Nair Exploitation Commercial Concern during the year has been fully realized in accordance with the budget figures submitted in September 1927, when a loss of Rs. 51,100 was budgeted for as opposed to Rs. 2,43,731–8–9 in 1926–27 and Rs. 84,776 in 1927–28, the actual loss for 1928–29 being Rs. 45,486–2–0. This loss is composed entirely of indirect charges as follows which would not have to be charged at all in ordinary accounting by a non-commercial division :—

	Rs.
Interest charges on capital investments	31,744
Chief Forest Engineer's overheads	7,200
Leave and pension contribution	7,154
Passage pay contribution	600
Audit fee	1,000
	47,698

The interest is, of course, a profit to Government and can, therefore, be ignored when estimating the actual loss.

In addition a sum of Rs. 29,287–4–0 has been placed in the Road Depreciation Reserve Fund and Rs. 4,026–8–6 has been charged against this year's profit and loss account out of the Rs. 10,000 spent in completing the Olavakkot-Elival main road in 1927–28. This should really have been charged to capital instead of which this division has had to meet it out of revenue.

Also Rs. 14,478 has been paid towards depreciation of plant and machinery, and Rs. 3,253 for running in charges when the mill was erected in 1924. It will be seen, therefore, that Rs. 98,743 has to be met annually, i.e., Rs. 47,698 in indirect charges and Rs. 51,045 in depreciation to roads, plant and machinery before there can be any thought of making a profit.

Out of this total of Rs. 98,743, a sum of Rs. 53,257 has been paid during 1928-29. Thus by keeping the mill running, Government have recovered Rs. 53,257 which they would have lost if the mill had been closed down as was proposed.

While the charges made in regard to depreciation of plant and machinery are fair, the charges in regard to road depreciation are unduly heavy.

For instance there is no actual depreciation on a main metalled road, which is being fully maintained in good working condition annually out of revenue charges. Yet this division is being called upon to pay off the sum of Rs. 31,985 in depreciation charges on the Olavakkot-Elival road which is and will continue to be the main artery to more than half of the Chenat Nair reserve forest. Also even though the temporary roads were built in the first instance for the Exploitation Division, yet they have opened up many thousands of acres of what were previously inaccessible forests and have improved the value of these forests three or four hundred per cent. This should now be taken into consideration and the depreciation charges on all these roads revised.

For instance, a sum of Rs. 10,000 annually can now be realized by the Palghat Division from the Elival Valley forests by sales of firewood, bamboos and minor forest produce alone on account of these roads being in existence. Even if Rs. 5,000 a year is spent on maintaining them which is more than would be required in the ordinary way—there will still be a surplus revenue of Rs. 5,000 annually.

It is, therefore, unreasonable to assume that these roads have no value when the exploitation work is finished and the amount chargeable to the Exploitation Division as depreciation should be made in proportion to this fact instead of making it write off the total value of the roads as is being done at present over a short period of about three years.

Logging and exploitation.—The policy adopted during the year was to convert all *Hopea*, *Mesua ferrea* and *Cylia Xylocarpa* into sleepers in the forest and bring all other timbers to the mill to be sawn into scantling and box boards according to the species.

The following quantities of sleepers were sold during this year compared with quantities sold last year :—

	1927-28.	1928-29.
Broad gauge	7,259	12,439
Meter gauge	11,999	11,018
Special	502	245
Narrow gauge	52	...

The revenue obtained for these was Rs. 1,25,790, the gross profit being Rs. 66,875-5-0 from which the following overheads had to be met :—

	Rs.	A.	P.
Share of Forest Engineer's pay and establishment and Chief Forest Engineer's charges.	9,441	2	4
Depreciation to roads	6,542	12	0
Repairs to roads	2,787	10	8
Forest Utilization Officer's overheads.	4,813	0	0
Total ...	23,584	9	0

The net profit was, therefore, Rs. 43,293-12-0 on sleeper operations alone.

The *actual* cost per sleeper is given below, overheads being shown separately for comparative purposes with non-commercial divisions :—

	1927-28.			1928-29.		
	Rs.	A.	P.	Rs.	A.	P.
Broad gauge actuals including clamping and loading.	3	9	9	3	8	3
Overheads	2	1	0	1	6	6
Total cost ...	5	10	9	4	14	9
Meter gauge actuals including clamping and loading.	1	11	9	1	10	11
Overheads	0	15	10	0	10	10
Total cost ...	2	11	7	2	5	9

Logs.—Work was organized so that the top areas worked in the dry weather and the lower areas during the monsoon. The work is getting further away from the mill all the time and a slightly higher carting rate had to be paid. Also the tractor yarding costs were slightly higher this year owing to the poor stand and scattered nature of the timber and the frequent long moves to new rigs that had to be made. Over the total area worked the average stand was not even 200 cubic feet per acre.

Such a poor stand is extremely difficult and expensive for mechanical logging but next year we shall have reached the area where there is an average stand of over 400 cubic feet to the acre and yarding costs will decrease considerably. There was 150,364 cubic feet of timber felled for the mill and 86,554 cubic feet for sleepers during the year. One lakh sixty seven thousand five hundred and eighty three cubic feet was yarded, the excess under yarding being forest balances from the previous year. The tractors yarded 84,500 cubic feet of this and the balance was yarded by elephants in the lower areas during the monsoon.

It is owing to the fact that we managed to keep the felling, yarding and carting work in full swing during the monsoon that we have been able to show a reduction in cost of logs delivered at the mill this year in spite of increased actual charges, as the overheads were able to be distributed over a larger quantity and were consequently less per cubic foot.

The same applies to sleepers and out of 23,702 sleepers obtained more than half were sawn during the monsoon months. Considering that the average rainfall in the Elival Valley is about 175 inches, it is no mean feat to keep work going on all the year round and the Forest staff have worked very hard to accomplish this, particularly Rangers Ramunni Menon and Sankunni Menon and Foresters Muthanna and Achayya.

Ranger Sankunni Menon was deputed to the Phillipines in September 1928 for training in Forest Engineering and Ranger Ramunni Menon was left in charge of the entire extraction work, i.e., felling and logging, tractor and elephant yarding, sleeper sawing and all carting work in addition to the construction of several miles of new roads. He managed the whole of this work in a quiet and efficient manner and a great deal of the improvement in the financial position of the division this year is due to his loyalty and devotion to duty.

One lakh seventy-seven thousand and six hundred cubic feet of logs, 52,342 cubic feet of sleepers and 4,356 cubic feet of vittams and other sawn produce were carted to Olavakkot, i.e., 2,34,298 cubic feet of timber altogether in addition to 72,527 cubic feet of fuel.

The actual cost of logs delivered at the mill was Re. 0-9-8·16 plus Re. 0-5-8·86 overheads or Re. 0-15-5·02 per cubic foot altogether as opposed to Re. 1-0-3·16 in 1927-28.

About four miles of Forest road and 2,200 yards of 6-foot bridle path was constructed during the year at a cost of Rs. 20,000. A rest house was also constructed in the Top area at a cost of Rs. 2,980. Also temporary quarters for the subordinates and tractor crews were built at a cost of Rs. 1,447 and will be occupied immediately after the monsoon to enable these men to spend more time on the work instead of wasting so much time travelling to and from Olavakkot.

Heavy monsoon damages was sustained on the Forest roads and Rs. 1,878 had to be spent in repairs to these roads.

Saw Mill.—In 1926-27 a double shift worked throughout the year and in 1927-28 a double shift worked for six months and a single shift for the other six months.

During the year under review the mill worked only one shift yet more cubic feet of logs were converted than in 1926-27 when a double shift was working all the time and a much higher percentage of outturn was obtained. The following table shows the quantities of logs converted, outturn obtained and the cost of sawing (including overheads) during the past four years.

Year.	Logs converted.	Sawn outturn.	Percentage of outturn.	Cost of sawing per cubic foot.	Cost per cubic foot of sawn timber.
	C. FT.	C. FT.		RS. A. P.	RS. A. P.
1925-26	63,705	35,375	51·00	1 15 1·1	3 11 1·1
1926-27 (*a*)	175,026	75,648	43·02	1 4 3·98	3 8 0·49
1927-28 (*b*)	165,827	85,986	51·85	1 1 0·006	2 12 9·70
1928-29 (*c*)	176,451	102,857	58·29	0 11 8·49	2 6 4·33

(*a*) Two shifts, full time. (*b*) Two shifts for 110 days. (*c*) One shift.

It will be seen from the above that considerable improvement has taken place in outturn and that the sawing cost has been steadily reduced.

In fact for this year the *actual* cost of sawing is only Re. 0-6-9·55 the balance of Re. 0-4-10·94 being overheads.

The year was started with an opening balance of 13,286 cubic feet and 58,357 cubic feet of junglewood scantlings were handed over to the Utilization Division during the year. 27,586 cubic feet was sold by them through the Agent and 5,985 cubic feet (less 1,350 cubic feet which was actually sold by this division and passed through the Forest Utilization Officer's books) were sold direct leaving a balance of about 38,000 cubic feet in stock on 31st March 1929.

The sales made by this division realized a little over the cost of production while those made by the Utilization Division resulted in a dead loss of over Re. 1 per cubic foot. It is obvious, therefore, that the more special orders we can get the better as less will go into stock to be sold at a loss.

Dry kiln.—The kiln was working fairly regularly during the year and 21,100 cubic feet of timber was seasoned. The actual cost for the year is Re. 0-5-0 and including overheads it comes to Re. 0-7-6 per cubic foot against Re. 0-9-7·85 per cubic foot for 1927-28. The cost would have been reduced further had it not been for the big cross sections of hardwood species seasoned for executing military orders for which an enhanced rate for seasoning would have been charged.

The capacity of the kilns has been increased considerably since the remodelling of same last year and more uniform and satisfactory results have been obtained.

Box section.—The box section was not working to full capacity during the year, as there were not sufficient box boards and only 18,228 cubic feet of timber was available for manufacture.

Machine shop.—The machine shop belonging to the Saw Mills and Extraction Division and attached to this Saw Mill was working throughout the year and all petty repairs, etc., to the machinery were done by our own staff at Olavakkot as well as petty repairs for other portable mills under the Forest Engineer in charge, Saw Mills and Extraction Division.

Half the share of interest and depreciation on the above machinery was charged to Saw Mills and Extraction Division.

The high percentage of outturn and low cost of production in both logging and in the Saw Mill were due to the retrenchment affected during the previous year, closer supervision and because staff are getting more experienced and efficient.

Total sales have again increased from Rs. 2,39,545-13-6 to Rs. 2,58,399-14-7 as shown below :—

Classification.	1926-27.	1927-28.	1928-29.
	Value.	Value.	Value.
	Rs. A. P.	Rs. A. P.	Rs. A. P.
Sleepers	..	1,00,331 6 0	1,25,790 6 0
Sawn timber	1,08,295 13 1	1,06,693 15 8	85,378 12 7
Manufactured articles	23,585 15 10	10,958 7 8	23,332 9 0
Kolmarams, vittams, etc.	..	8,749 8 0	3,589 2 0
Logs	11,488 2 11	1,964 2 0	8,759 13 0
Fuel	4,114 3 6	5,678 9 2	4,876 12 0
Bamboos	..	5,169 13 0	5,625 0 0
Miscellaneous	1,093 12 10	..	1,047 8 0
Total ..	1,48,578 0 2	2,39,545 13 6	2,58,399 14 7

General.—There was nearly a 50 per cent improvement in the financial position this year over last year's figures and with better conditions for the tractors and reduced costs in yarding and sleeper work which are certain to be effected this current year the position is more encouraging, and there is no doubt but what we shall be able to just about balance the budget for the first time. Everything depends on the sales of sawn timber however. At any rate, we know now that practically all our junglewoods can be disposed of at a profit providing that the total cost of extraction is not more than eight annas per cubic foot and the milling charges not more than eight annas.

Some of the better class species can even be extracted profitably up to twelve annas per cubic foot—but for general purposes the average selling rate should be taken as Rs. 1–8–0 per cubic foot for most classes of junglewoods and future exploitation schemes should be based accordingly on that figure.

The charge of the division was held throughout the year by Mr. E. S. Dawson, I.F.E.S.

VIII.—Forest Utilization Division.

The work of this division improved considerably during the year. Sales increased by nearly a lakh of rupees to over 13 lakhs and more important still the overheads were reduced from 6·7 per cent of the turnover to 3·8 per cent.

The expense of selling would have been further reduced had Government seen fit to pass orders on the new agreement negotiated with the Agent at the end of his current contract early in November 1928. This new agreement would have reduced his commissions by $3\frac{1}{2}$ per cent from 11th November 1928 onwards. However as no orders were passed he benefited throughout the remainder of the year by being able to retain his old commission rate.

2. Fifty-five thousand six hundred and ninety-four sleepers were supplied to the Railways during the year as compared with 34,444 in 1927–28 and the gross income from this source increased from Rs. 2,00,533 to Rs. 3,72,421.

This increase was due almost entirely to better organization.

3. The increase in total sales is all the more praiseworthy in view of the fact that the sales of teak logs at Beypore decreased from 113,130 cubic feet to only 41,776 cubic feet.

Sales of sawn timber increased from Rs. 3,03,374 in 1927–28 to Rs. 3,64,568 during 1928–29. One of the principal reasons for the improvement in the log market was the fact that the conversion of inferior logs into sawn material not only prevented the markets from being flooded with logs but also gave the outturn a wider distribution, as sawn products can carry more railway freight than logs and therefore reach a much wider market.

4. There seems a slight tendency for log and sawn timber stocks to increase in the depots. This should be guarded against and improvement has already been affected during the opening months of 1929-30.

5. The Forest Utilization Officer notes that sales at Olavakkot depot were bad due to so many unknown and inferior species being placed on the market. Yet according to the sales statements the quantities of timber sold at this depot and the average sale price exceeded the averages in every depot except Nanjangod and the sales of scantlings at Olavakkot nearly doubled in value over those of 1927-28.

Likewise, although Kasaragod is held to be such a poor market for sawn material other than teak, yet more timber at better prices was sold at this depot than was the case at Pollachi, which is supposed to be a good market.

6. The overseas trade shows signs of improvement again due to the demand arising for laurel. This demand is now far in excess of the supply.

The report of the Forest Utilization Officer follows :—

ADMINISTRATION REPORT OF FOREST UTILIZATION DIVISION FOR 1928-29.

At the commencement of the year the division held control of the following timber depots :—

Beypore (for Nilambur commercial concern),

Pollachi (for Mount Stuart commercial concern),

Olavakkot sawn timber depot only (for Chenat Nair commercial concern),

Nanjangod with a grading station at Chedleth (for Wynaad division), and

The sleeper depot at Pollachi (for Valparai Project).

On 1st July 1928 the carting of timber from Parappa to Kasaragod and Chedleth to Nanjangod was handed over to the Forest Engineer in charge, Saw Mills and Extraction, therefore the grading stations at Parappa and Chedleth were transferred to Kasaragod and Nanjangod, respectively.

The post of Assistant Forest Utilization Officer, West Coast, was abolished on 15th April 1928 therefore almost throughout the whole year the organization of all these depots was carried out by the Forest Utilization Officer aided by the Assistant Forest Utilization Officer both with headquarters in Madras.

Various reductions in the field staff have been made during the year, the post of Special Duty Ranger, Podanur, was abolished as from 1st April 1928, the Range Officer thus released was placed in charge of Pollachi depot. Consequent upon the handing over of all carting work from Parappa to Kasaragod and Chedleth to Nanjangod the depots of Kasaragod and

Nanjangod were placed under one Range Officer as from 16th August 1928 and the other Range Officer was transferred to the ordinary line. Unfortunately, Range Officer B. K. Krishna Rao who was in charge of these two depots, died of fever on 22nd October 1928 after a very short illness; no Range Officer could be spared to replace him, therefore the two depots were placed under the charge of a senior forester, but the arrangement has not turned out very satisfactorily. Between October and April the services of the Special Duty Range Officer, Calicut, were placed at the disposal of the Logging Engineer whenever required, for recruiting labour for the new Amarampalam Project, this work took up a considerable portion of his time.

The details of staff in the division at the end of the year are shown under the heading of Administration.

Operations.—According to the audited figures the turnover of the Forest Utilization division for 1928–29 is Rs. 13,16,184, being an increase of Rs. 93,398 over 1927–28, at the same time the overheads of the division were reduced from 6·7 per cent in 1927–28 to 3·8 per cent in 1928–29.

Details for the total turnover in 1928–29 are given in statement I.

Beypore depot.—In the case of logs and poles the receipts from Nilambur were 248,059 cubic feet and the disposals 245,119 cubic feet. The demand for teak was exceptionally good, as there is a general shortage of teak on the West Coast and it is anticipated that high prices will be maintained during 1929–30 also. Good prices were obtained for pillamaradu (*Terminalia paniculata*), karimaradu (*Terminalia tomentosa*), venteak (*Lagerstroemia lanceolata*) and irul (*Xylia xylocarpus*) through forward sales, while the prices fetched in auction were satisfactory. With the exception of irul of which there are large stocks on the West Coast, prices for the other species should rise slightly in the coming year.

The mill was kept supplied with logs throughout the year and the disposals from stock were practically equal to the receipts from the mill. The prices received for scantlings were on a par with current market rates.

Statement II shows the timber dealings during the year.

Pollachi depot.—Auction sales of logs were held monthly during the year, 78,906 cubic feet, were sold against an in-take of 90,050 cubic feet. A large auction sale was held at the end of March the results of which are not included in the above figures therefore the unsold balance at the end of year is not as large as it appears.

Sales were only fairly well attended and the price of teak did not rise as much as in other depots, on the other hand the junglewood species improved in price considerably, very good prices being obtained for pillamaradu (*Terminalia paniculata*), venteak (*Lagerstroemia lanceolata*) and vengai (*Pterocarpus marsupium*).

There was a large stock of old spokes and felloes at the beginning of the year which were sold at good rates considering their condition.

The transactions in sawn timber were very small, chiefly on account of the mill being moved to Topslip during which time it did not work, also it was greatly hampered through boiler trouble and the staff being attacked with fever. The receipts were 13,161 cubic feet and 14,899 cubic feet were sold. Details of receipts and disposals are shown in statement III.

Kasaragod.—Log sales were not very encouraging. 13,266 cubic feet of logs and poles were received of which 8,559 cubic feet were sold and removed, a further sale of 4,900 cubic feet was effected but as the timber was not removed before the close of the year it is not shown. Kasaragod itself is a very poor market, and the prevalent species such as karimaradu (*Terminalia tomentosa*) and pillamaradu (*Terminalia paniculata*) are not used on the West Coast, this timber has therefore to come east and pass on its way Kallai, which produces better logs at relatively cheaper rates, added to which the railway freight from Kasaragod is more than from Kallai or Calicut. The sale of sawn scantlings was poor, the year opened with a stock of 15,579 cubic feet and closed with 29,100 cubic feet, in stock the sales being 25,794 cubic feet. Owing to the partial failure of carting arrangements in the early part of the year, followed by the monsoon, large stocks of timber which had been exposed to the rain and sun were received in November, December and January and it was found difficult to dispose of such large stocks nearly all of which had lost colour and were poor in quality, added to the fact that Kasaragod and neighbouring localities form a poor market.

Also this depot is handicapped by the fact that only very short logs go into the mill at Parappa, consequently the scantlings only average seven to eight feet in length.

Details of receipts and disposals are noted in statement IV.

Nanjangod.—The receipts of logs were 59,112 cubic feet, 40,713 being sold and removed during the year, the closing balance was 18,992 cubic feet, nearly the whole of which had been sold in auction towards the end of the year but had not been removed by 31st March 1929. The prices realized were exceedingly good, no less than Rs. 2-13-2 per cubic foot being obtained for the whole of the teak stocks sold, both bad and good. Auctions were well attended and competition was very keen. 21,319 cubic feet of scantlings were received and 9,206 cubic feet sold, the apparently poor sales were caused by the fact that almost the whole quantity was received between November and March and there was no time to clear more before the year closed. It is not anticipated however that there will be any difficulty in the disposal of stocks from this depot as the market and demand are good. Statement V shows the dealings during the year.

Olavakkot.—The results of the sales effected in this depot are not very satisfactory, during the year 62,850 cubic feet were received from the mill, of which 54,700 cubic feet were of unknown and inferor species, and 33,572 cubic feet were sold, the stock at the end of the year being 37,281 cubic feet. This depot is always faced with the fundamental difficulty of placing on a very conservative market, large stocks of timber, many species of which are totally unknown in most parts of the Presidency, and some species of which are of distinctly inferior quality. Early in the year the prices of the inferior classes of timber were raised on two occasions, these rises may have been excessive within a short space of time, especially when many of the species were only just getting a footing in the market, with the result that the demand fell. During the coming year all the scantlings and plank sales are being placed under the Forest Utilization division and when stocks have been brought to normal, it is hoped that better and more frequent sales will result, with an ultimate rise in price.

The position of the receipts and disposals on 31st March 1929 is given in statement VI.

Other operations.

Sleepers.—The Railways for the first time agreed to accept second-class sleepers at two-thirds the price of first class with the result that the percentage of rejections was considerably reduced. A new method of strapping the ends of sleepers was tried by driving Stuart's clamps into the ends of the sleeper instead of the old method of binding with hoop iron. The new method although not perfect, was certainly more effective than the old method. The statement given in Statement VII shows the number of sleepers actually despatched to the railways and the amounts realized. The Railways agreed to accept from the Forest Department a quota of 40,131 B.G., and 18,575 M.G., and up to the end of March 37,646 B.G. and 18,048 M.G had been inspected and passed by the Forest Utilization division, the remainder (2,485 B.G. and 527 M.G.) were passed early in April thus completing the quota, the short supply, although small, is regrettable and is due to certain divisions being unable to supply their estimated quota by due dates.

Inspections of depots and auctions.—The Forest Utilization Officer and Assistant Forest Utilization Officer toured continually throughout the year, passing sleepers, holding auctions and inspecting the depots, two hundred and four days being spent in camp.

All depots have been inspected at regular intervals throughout the year, and stock taking in part or whole has been carried out.

Overseas Trade.—Although the Agency with Messrs. W. W. Howard Brothers and Company was terminated in December 1926, final accounts are not yet forthcoming owing to the inability of the firm to account for all our stocks standing in their name on the books of this division. A small sum is still to be accounted for but as the High Commissioner has undertaken the audit of their accounts, it is hoped that the final adjustments will soon be made.

Proposals were submitted to Government in February 1927 for appointing other Agents, but the year has elapsed without any final orders having been received. However the export of logs for direct sale and through Messrs. Pierce Leslie and Company on consignment sale, considerably increased during the year.

The position of the consignments made through Messrs. Pierce Leslie and Company is as given in Statement VIII.

As most of the logs were exported during the latter part of the year, the results of these transactions cannot yet be estimated. The exports on account of direct orders are noted in Statement IX.

Two orders were received late in the year, but export was not effected until after the year closed.

It will be noticed that the majority of the logs exported were Laurel (*Terminalia tomentosa*) and as this timber was little known hitherto on the European and American markets, these sales were somewhat in the nature of an experiment.

Home Trade.—The demand and prices of timber in general showed a decided improvement, this is partly due to the grading of logs, and that most of the inferior logs have been taken off the market and cut up in the mills, also general scarcity of teak almost throughout the Presidency. An

order of 7,500 cubic feet of teak logs was obtained from the Madras and Southern Mahratta Railway all of which was met from the Pollachi, Mysore and Nanjangod depots.

Regarding sawn material, the Railways placed orders for special sawing order, to the extent of nearly Rs. 58,913-12-0. The Public Works Department have also placed many indents with the division. The bazaar market has been supplied chiefly through the Government Sales Agent who has handled 105,181 cubic feet during the year valued at Rs. 2,64,282. His relations with the Forest Utilization division have been satisfactory.

Financial.—The turnover of the Forest Utilization division during the year was Rs. 13,16,184 whereas the figures for the division from its inception in 1925-26 to date are as follows :—

	RS.
1925-26	$3\frac{1}{2}$ LAKHS.
1926-27	$9\frac{1}{4}$,,
1927-28	$13\frac{1}{4}$,,

this shows a steady increase and it is hoped 1929-30 will show more satisfactory results still.

Administration.—The following officers held charge of posts during the year :—

Forest Utilization Officer ...	Mr. J. W. K. Wernham from 1st April 1928 to 12th April 1928.
Forest Utilization Officer ...	Mr. H. P. Ward from 13th April to the end of the year.
Assistant Forest Utilization Officer.	Mr. H. P. Ward from 1st April 1928 to 12th April 1928.
Assistant Forest Utilization Officer for West Coast.	Mr. V. S. Kuppuswami from 1st April 1928 to 15th April 1928.
Assistant Forest Utilization Officer, Madras	Mr. V. S. Kuppuswami from 16th April 1928 to end of year.

On 31st March, the subordinate staff consisted of –

Field staff.

1 Special Duty Ranger, Calicut.

3 Depot Rangers : Beypore 1, Pollachi 1, Olavakkot 1.

7 Foresters : Beypore 2, Pollachi 2, Kasaragod 2, Nanjangod 1.

4 Depot clerks : (permanent and temporary), Pollachi 1 (permanent), Beypore 1 (temporary), Olavakkot 2 (stock keepers).

9 Watchers : Beypore 3 plus 1 (tope watcher), Pollachi 2, Kasaragod 2, Nanjangod 1.

5 Peons : Kasaragod 1, Calicut 1, Beypore 1, Pollachi 1, Olavakkot 1.

Headquarters staff.

1 Tour clerk.

1 Accountant.

9 Clerks (including Deputy Forest Utilization Officers).

7 Peons.

In conclusion I would wish to place on record the excellent work done by Supernumerary Ranger Ayyanna who has throughout the year been in charge of Beypore depot, where the value of timber sold is one-third of the total turnover of the division.

FOREST UTILIZATION DIVISION.

STATEMENT No. I.

Turnover, 1928-1929.

Depot.	Logs.	Scantlings.	Sleepers.	Rejections.	Miscellaneous.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Beypore	2,00,788	1,92,086	1,490	6,318	10,208	4,10,890
Pollachi	1,49,197	25,522	..	504	11,141	1,86,364
Olavakkot	..	55,649	..	..	..	55,649
Nanjangod and Mysore ..	1,37,503	29,136	2,564	210	..	1,69,413
Kasaragod	7,764	62,175	36,442	788	..	1,07,169
Valparai	..	..	1,17,646	2,043	585	1,20,274
						10,49,759

	Rs.
Beypore tope revenue	3,822
Sleeper bills forwarded on account of—	
District Forest Officer, Nilambur	19,547
Do. Wynad (Tellicherry)	29,694
Do. South Mangalore	3,940
Do. Palghat	60,516
Do. North Mangalore	16,914
Do. Tinnevelly	2,298
The Forest Engineer, in charge, Exploitation division, Olavakkot	1,22,982
Messrs. Mallinson & Sons' sales	6,712
	13,16,184

STATEMENT II

The Beypore Depot—Receipts and Disposals for 1928-29.

Species.	Opening stock.	Receipts.	Total.	Sales.	Issues to saw mill.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
Logs—	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT	C.FT.	RS.	RS. A. P.
1. Teak Logs	34,826	136,552	171,378	41,776	86,520	(*a*) 5,233	37,849	97,279	2 5 3
2. Pillamaradu	..	45,325	45,325	45,325	..	..	..	47,441	1 0 9
3. Karimaradu	2,155	2,554	4,709	4,709	..	..	..	4,373	0 14 10
4. Venteak	..	9,405	9,405	4,728	..	..	4,677	4,252	0 14 5
5. Irul	..	8,537	8,537	8,537	..	..	..	8,871	1 0 8
6. Rosewood	..	296	296	296	..	..	..	444	1 8 0
7. Miscellaneous..	86	440	526	514	..	(*b*) 12	..	109	0 3 5
8. Measurables and poles ..	3,841	44,949	48,790	47,444	..	(*c*) 25	1,321	40,385	0 13 7
Total ..	40,908	248,058	288,966	153,329	86,520	5,270	43,847	2,03,154	..
Sawn materials—									
9. Teak	10,799	42,700	53,499	42,249	..	..	11,250	1,40,923	3 5 4
10. Teak sleepers B.G. No. 149.	466	..	466	466	..	..	..	1,490	..
11. Teak rejected scantlings ..	392	3,844	4,236	3,452	..	..	784	2,540	0 11 9
Total ..	11,657	46,544	58,201	46,167	..	..	12,034	144,953	..
						Add sale amount of Porotes—rippings and wastage		..	6,318
						Sale of bamboos and Karias		..	10,208
						Deduct adjustment on account of 1927-28 year's sales		..	2,471
								Net total ..	3,62,162

(*a*) Despatched to F.U.R.O., Feroke, (*b*) Used departmentally.

STATEMENT III.

Pollachi Depot—Receipts and Disposals for 1928-29.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
Logs—	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
1. Teak	3,980	41,304 (*a*) 24	45,308	36,654	10	8,644	88,158	2 6 6
2. Karimaradu	..	10,286 (*a*) 142	10,428	8,986	(*b*) 55 (*c*) 17	1,370	10,840	1 3 4
3. Pillamaradu	1,163	11,539 (*a*) 41	12,743	9,357	..	3,386	11,613	1 3 10
4. Rosewood	5,123	39,999 (*a*) 33	9,155	8,322	(*b*) 28	805	16,035	1 14 9
5. Venteak	220	9,716 (*a*) 9	9,945	5,657	..	4,288	7,415	1 5 0
6. Vengai	3,022	5,079	8,101	6,243	..	1,858	7,663	1 3 8
7. Miscellaneous	160	7,878	8,038	3,687	(*d*) 613	3,738	3,392	0 14 8
Total ..	13,668	90,050	103,718	78,906	723	24,089	1,45,116	..
8. Teak poles Nos.	..	3,912	3,912	1,773	(*e*) 200	1,939	536	
9. Teak spokes	10,876	6,571	17,447	13,811	..	3,636	11,141	
,, felloes	5,442	3,282	8,724	6,906	..	1,818		
10. Vengai spokes	..	707	707	..	..	707	..	
,, felloes	..	354	354	..	..	354	..	
						Total ..	11,727	
						Grand Total ..	1,56,843	
						Deduct last year's adjustment ..	9	
							1,56,834	

(*a*) Excess in stocktaking. (*b*) Consigned to Messrs. Peirce Leslie & Co. (*c*) Used departmentally.
(*d*) Despatched to Dehra Dun. (*e*) Issued to the Assistant Conservator in charge, Udamalpet Range.

Pollachi Depot—Receipts and Disposals of saw on timber for 1928–29.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Teak	2,864	4,769	7,633	5,681	*a*10	1,942	14,304	2 8 3
Other species	4,343	8,392	12,735	9,218	*b*26	3,410	11,277	1 3 7
					*c*81			
	7,207	13,161	20,368	14,899	117	5,352	25,581	
					Sales of Porotes ..		504	
							1,82,919	
					Deduct adjustments of 1927–28 ..		60	
						Net total ..	1,82,859	

(*a*) Deficit in cross cutting. (*b*) Deficit in stock-taking. (*c*) Departmental use.

Statement IV.

Kasaragod Depot—Receipts and disposals for 1928-29.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.	Remarks.
Logs—	C.FT.	C.FT.	C.FT.	C.FT.		C.FT.	Rs.	Rs. A. P.	
Karrimaradu ..	515	1,853	2,368	2,347	..	21	2,731	1 2 7	
Pillamaradu ..	..	5,598	5,598	642	..	4,956	557	0 13 11	
Rosewood ..	..	429	429	290	..	139	562	1 15 0	
Other species ..	..	421	421	315	..	106	192	0 9 9	
Teak poles ..	..	4,965	4,965	4,965	..	..	3,722	0 12 0	
Total ..	515	13,266	13,781	8,559	..	5,222	7,764	..	
Sleepers received from District Forest Officer, South Mangalore.									
Xylia B.G. ..	..	756	756	459 I	..	175	3,672	8 0 0	
				79 II	..	..	420	5 5 0	
				43	..	..	78	1 13 0	
				Rejections.					
Xylia M.G. ..	..	647	647	466 I	..	146	1,398	3 0 0	
				26 II	..	..	52	2 0 0	
				9	..	..	11	1 3 0	
				Rejections.					
Hopea B.G. ..	..	3,730	3,730	3,037 I	..	454	25,814	8 8 0	
				129 II	..	..	734	5 11 0	
				110	..	..	199	1 13 0	
				Rejections.					
Hopea M.G. ..	..	1,153	1,153	904 I	..	185	2,712	3 0 0	
				28 II	..	..	56	2 0 0	
				36	..	..	43	1 3 0	
				Rejections.					
Total ..	..	..	..	..	..	..	35,219	..	
Poon squares sizes kolmarams and chattams	739	691	1,430	1,124	..	306	1,391	1 3 9	

Kasaragod Depot—Receipts and disposals for 1928-29—*cont.*

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.	Remarks.
Mill sawn timber—	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.	
Teak	5,838	16,609	22,447	14,351	..	8,096	45,772	3 3 0	
Other species ..	9,741	22,729	32,470	10,693	23	21,004	15,012	1 6 6	
B.G. 58 ..	..	..	..	181	..	..	464	..	
M.G. 379 ..	..	..	..	569	..	..	1,120	..	
Total ..	15,579	39,338	54,917	25,794	23	29,100	62,368	..	
Add sale amount of cut ends, porotes, etc.	..	..	..	..	..	..	427	..	
Grand total ..	..	..	..	..	..	..	99,405	..	

STATEMENT V.

Nanjangud Depot—Receipts and disposals for 1928-29.

Species.	Opening stock.	Receipts.	Total	Sales.	Other disposals.	Closing stock.	Sale-amount.	Average rate.
	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Logs—								
Teak	666	56,415	57,081	40,674	(a) 73	16,334	1,14,853	2 13 2
Vengai ..	..	1,334	1,334	39	..	1,295	68	1 12 0
Rosewood ..	..	1,363	1,363	..	..	1,363	..	..
Total ..	666	59,112	59,778	40,713	73	18,992	1,14,921	..
Sawn timber—								
Teak scantlings.	1,540	14,181	15,721	8,255	(a) 48	7,418	27,314	3 4 11
Teak sleepers Broad Gauge No. 36.	113	..	113	113	..	..	360	..
Teak sleepers Metre Gauge No. 129.	193	..	193	193	..	..	516	..
Other species.	297	7,138	7,435	645	(a) 92	6,698	1,822	2 13 2
Total ..	2,143	21,319	23,462	9,206	140	14,116	30,012	..
Add sale of 500 Metre Gauge sleepers from Chickenji Saw Mill at Rs. 3-6-0 per sleeper.							1,688	..
Add sale of Porotes							210	..
							1,46,831	..
Deduct last year's adjustment							1,546	..
						Net Total ..	1,45,285	..
Mysore Depot—								
Sale of 5,639 cubic feet of teak logs							17,880	3 0 2

(a) Used departmentally.

STATEMENT VI.

Olavakkot Depot—Receipts and disposals of sawn timber for 1928-29.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Nilambur teak ..	891	14,376 562	15,829	13,012	355 958*	1,504	48,727	3 11 11
Elival teak ..	694	216	910	695	92	123	2,314	3 5 3
Other species ..	11,591	62,634	74,225	32,877	4,190	37,158	53,754	1 10 2
Total ..	12,285	62,850	75,135	33,572	4,282	37,281	56,068	..
Deduct adjustment of 1927-28 sales							— 434	..
						Net total ..	55,634	..

* Consigned for overseas sales.

STATEMENT B.

Valparai sleeper project—Pollachi—Receipts and disposals, 1928-29.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
	NOS.	NOS.	NOS.	NOS.	NOS.	NOS.	RS.	RS. A. P. EACH.
Mesua sleepers Broad gauge.	3,331	14,224	17,555	594	..	3,440	5,346	9 0 0
				12,456-I	..	..	1,05,876	8 8 0
				421-II	..	..	2,394	5 11 0
				644	..	..	854	..
				Rejections.				
Mesua sleepers metre gauge.	442	1,224	1,666	1,335-I	..	229	4,005	3 0 0
				12-II	..	..	24	2 0 0
				90	..	..	75	..
				Rejections.				
Kolmarams ..	..	250	250	80	..	170	585	..
Chattams ..	..	500	500	142	..	358		
							1,19,159	..
Add sale amount of cut ends							1,118	..
							1,20,277	..
Less last year's adjustment							4	..
							1,20,273	..

STATEMENT VII.

Statement showing sleepers actually despatched in 1928–29 (1929–30 contract).

Division.	Broad-gauge.					Metre-gauge.					Grand total.
	I class.	Amount.	II class.	Amount.	Total.	I class.	Amount.	II class.	Amount.	Total.	
	Nos.	Rs. A.	Nos.	Rs. A.	Rs. A.	Nos.	Rs.	Nos.	Rs. A.	Rs. A.	Rs. A.
Olavakkot	9945	83.543 8	523	2,899 13	86,443 5	10503	31,650	575	1,191 4	32,841 4	1,19,284 9
Valparai	9340	83,649 0	421	2,394 7	86,034 7	1079	3,057	12	24 0	3,081 0	89,115 7
Kasaraged	3554	29,950 8	208	1,153 6	31,103 14	1732	5,196	71	142 0	5,338 0	36,441 14
Wynaad	2320	19,720 0	84	477 12	20,197 12	1353	4,059	54	108 0	4,167 0	24,364 12
Nilambur	2090	16,720 0	48	255 0	16,975 0	848	2,544	14	28 0	2,572 0	19,547 0
South Mangalore	252	2,016 0	9	47 13	2,063 13	618	1,854	11	22 0	1,876 0	3,939 13
North Mangalore	1734	14,739 0	13	73 15	14,812 15	697	2,091	5	10 0	2,101 0	16,913 15
Palghat	6560	55,760 0	300	1,706 4	57,466 4	992	2,976	37	74 0	3,050 0	60,516 4
Tinnevelly	156	1,326 0	13	73 15	1,399 15	280	840	29	58 0	898 0	2,297 15
	36451	3,07,415 0	1619	9,082 5	3,16,497 5	17842	54,267	808	1,657 4	55,924 4	3,72,421 9

To complete the 1929–30 contract 2,485 Broad gauge and 527 Metre gauge sleepers were passed since 1st April 1929.

STATEMENT A,

Messrs. Howard Bros., in account current with the Forest Utilization Officer, Madras.

Date.	Particulars.	Account sale number.	Net. amount.	Debits.	Credits.	Division to be credited.
			£ s. d.	£ s. d.	£ s. d.	
1st April 1928	To balance, B.F.	..	..	277 18 11	..	
August	To overcharge of rent "Clan Monroe" ..	..	..	8 15 3	..	Nilambur.
	By wages paid for turning down logs ..	..	..	..	1 5 4	
	By excess credit afforded in a/c sale No. 140, remeasurement	..	..	..	0 14 10	
July	To sale of laurel "Clan Bassano"	141	..	1 17 7	..	Wynaad.
September	Do. "City of Madrid" ..	142	..	21 15 7	..	Do.
October	Do. do.	143	..	20 16 10	..	Do.
November	Do. "Clan Macta vish" ..	144	8 7 11	..	..	South Coimbatore.
	Do. "Mackenzie"	144	117 4 3	..	..	Do.
	Do. "Stuart"	144	29 13 4	..	..	Do.
	Do. "Mackenzie"	144	31 4 0	..	..	Do.
	Do. "Stuart"	144	26 6 5	..	..	Do.
	Do, "MacInnes"	144	19 17 6	..	..	Do.
	Do. do	144	9 5 4	241 18 9	..	Do.
	Do. "Bassano"	145	2 1 8	..	..	Wynaad.
	Do. "City of Madrid" ..	145	1 12 8	..	..	Do.
	Do. "Bassano"	145	10 9 1	14 3 5	..	Do.
December	By remittances received	..	..	..	135 0 0	
	To sale of laurel "Clan Stuart"	146	68 4 5	..	..	South Coimbatore.
	Do. "Mackenzie"	146	24 0 0	..	..	Do.
	Do. "Bayanavoo Renald" ..	146	11 10 3	103 14 8	..	Wynaad.
	By remittances	..	..	..	70 0 0	
January	To sale of laurel "City of Madrid" ..	147	14 12 11	..	..	
			0 18 6	13 14 5	..	Wynaad.
February	By returns inwards, "Bassano"	..	2 5 0	..	..	
			0 3 4	..	2 1 8	Wynaad.
	By balance	..	..	..	496 3 7	
	Total ..	..	..	704 15 5	704 15 5	
	To balance carried down ..	..	496 3 7	..	..	

STATEMENT VIII.

Messrs. Peirce Leslie & Co., Consignments, 1928-29.

Division.	Species.	Stock on 1st April 1928.	Despatches in 1928-29.	Sales in 1928-29.	Gross Amount.	Expenses incurred by Forest Utilization division.*	Net amount.	Average rate per cubic foot.	Stock on 31st March 1929.
					Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Exploitation division	Teak	..	973·743	..	..	..	..	..	973·743
Wynaad division.	Rosewood ..	320·565	875·598	939·660	4,464 6 3	235 6 11	4,228 15 4	4 8 0	256·503
	Laurel ..	..	2,122·444	57·444	1,750 13 7	..	1,750 13 7	30 7 5	2,065·000
South Coimbatore.	Rosewood, ..	508·703	75·430	536·953	3,148 5 6	749 4 9	2,399 0 9	4 7 6	47·180
	Laurel ..	..	55·010	55·010	355 5 0	78 12 7	276 8 5	5 0 5	..
	Manjakadambai	118·000	..	..	..	..	..	..	118·000
	Total ..	947·268	4,102·225	1,589·067	9,718 14 4	1,063 8 3	8,655 6 1	..	3,460·426

*These figures do not include district expenses.

STATEMENT IX.

Overseas sales in 1928-29 booked directly by the Forest Utilization division.

Division.	Quantity.	Species.	Sale amount.	Forest Utilization division expenses.	Net amount to be realised.	Rate per cubic foot on sale amount.	Remarks.
			Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Wynaad	5 167	Rosewood ..	835 0 0	462 12 0	4,347 12 0	5 0 0	One log sold at Rs. 6 per cubic foot.
Do.	43 1,481	Laurel	3,975 0 0			2 8 0	
South Coimbatore	19 811	Rosewood ..	1,622 0 0	341 3 2	1,448 12 10	2 0 0	
Do.	1 42	Teak	168 0 0			4 0 0	
Total ..	68 2,501	....	6,600 8 0	803 15 2	5,796 8 10	..	

IX.—Minor forest products section.

This work was continued under the personal direction of the Chief Conservator of Forests.

2. A steady market for Hopea-bark has now been secured which absorbs all available outturn.

3. The Deputy Forest Utilization Officer, after special training in lac operations in Behar and Orissa and at Dehra Dun, has now made definite proposals for starting the industry in the Madras Presidency.

4. A start was made in the sorting and grading of *Myrabolams* with good results.

The report of the Deputy Forest Utilization Officer follows:—

Report of the deputy forest utilization officer.

Minor forests products section.

The chief items of work carried out in the Minor Forest Products Section during 1928-29 were—

Helping the trade.—The right to remove minor forest produce from the reserves was leased out as usual to local contractors. So one of the chief items of work in this section continued to be the bringing of the contractor and the purchaser into direct touch.

Many enquiries were received from individuals and firms, local and foreign, who were furnished with the information and the samples asked for. Holders of minor forest produce stocks, District Forest Officers as well as contractors, who were in touch with this office were kept informed of the current rates of their produces, trend of the market, and were supplied with a list of likely buyers.

A price list showing the local sale rates for various minor produces in the chief markets in this Presidency was compiled periodically and communicated to the Forest officers. It is proposed to supply copies of this price list to the chief firms dealing in minor produces.

Grading of myrabolams.—All the myrabolams collected from the Government as well as zamindari forests were sent down by the contractors to a central depot in Salem town where they were graded generally into two, sometimes into three grades, and sold in public auction twice a week. The owner of the depot who conducts the sales in the presence of the contractors or their agents is paid a percentage on the sale amounts as his commission. It is reported that these auctions command a good sale and are attended by purchasers from the adjoining districts.

The Salem myrabolams are of superior quality and are much valued by the tanners. I found them used by the tanners at Tuni and Rajahmundry in the Circars. So their whole output is absorbed in South India itself.

Collection of information.—It was not always possible to furnish all the information asked for by inquirers as it was not available in this newly created office. Further, literature available on this little known subject of minor forest produce is very meagre. The Deputy Utilization Officer had

therefore to look out for useful information from other Provinces and countries and from various sources which entailed a perusal of several trade journals, bulletins and books.

During his stay at Dehra Dun he went through almost all the permanent record files in the offices of the Forest Economist (Minor Forest Products Section) and the Forest Chemist in the Forest Research Institute, and took copious extracts from them for filing in the ledger files.

The ledger files were added to during the year, and extracts from and references to trade journals, reports, bulletins and books were inserted therein.

Statistics giving the annual outturn of the various minor products were obtained from the districts and posted in the stock book. The annual export and import figures relating to minor forest products were also obtained from all the Port Officers and recorded. A record of the market rates of the important products was maintained.

Scientific examination of some products.—Further analytical examination of *Hopea parviflora* bark and *Terminalia pallida* nuts and their effects in tanning were continued by the Research Chemist, Leather Trades Institute. Samples of catechu prepared from Acacia Sundra trees in Kurnool and Cuddapah were sent to the Forest Chemist, Forest Research Institute, for analytical examination to know the exact percentage of 'Keersal' found in them as the manufacture of 'katha' along with cutch would be more profitable.

Sale of ivory.—All the ivory, viz., 25 tusks and 73 pieces, that was in stock at the close of the previous year was sold. The tender accepted was Rs. 9-8-0 per pound for the big tusks, Rs. 4-8-0 per pound for the smaller tusks and Rs. 2 per pound for the small pieces. The total sale amount for the 265 lb. 11 $\frac{2}{5}$ oz. of tusks and 22 lb. 3 $\frac{3}{5}$ oz. of pieces was Rs. 2,233-3-0.

Four pieces weighing 22$\frac{1}{4}$ tolas which were received in March 1929 were in stock at the close of the year.

It was noticed that fresh ivory is liable to lose up to 5 per cent of its weight by dryage.

Cultivation of lac on Shorea talura—Results achieved.—The lac cultivation started in 1927 in Thalli reserve, North Salem district, was purely experimental to study the climatic conditions of the locality as they exert a large influence on and sometimes are the deciding factor on the suitability or otherwise of a locality for lac cultivation. It was extended to Jowligiri in 1928. During the year three crops in Thalli and three in Jowligiri were raised.

These experiments have established that Hosur plateau is suitable for lac cultivation.

2. It takes about 13 months to raise three crops which are generally styled as pre-monsoon, monsoon and post-monsoon crops. The pre-monsoon crop took the least time 16 weeks to mature, the monsoon crop took 18 to 19 weeks to mature, and the post-monsoon crop cover the longest periods 20 to 21 weeks.

3. The yield in a normal crop is generally four times the seed used. Best crops have yielded up to 9 times the brood lac put off. The monsoon corp yields the richest harvest whilst the poorest yield is generally obtained from the post-monsoon crops.

The post-monsoon crop generally gives a poor yield as it is cultivated in a period when the mean temperature and average rainfall and humidity are low.

Forty pounds of brood lac obtained from Mysore was expanded in 13 months (in three successive crops) to 2,560 lb. of brood lac.

4. The experiments have also served as a demonstration of the up-to-date method of cultivating lac successfully. Crops have been successfully raised both in Thalli and in Jowligiri reserves.

5. One ranger, one forester and two guards have been trained up for this work.

Disposal of brood lac, grain lac, etc.—Due to a shortage of suitable shoots for utilizing the whole quantity (2,562 lb.) of the brood lac harvested at the close of 1928, and to the absence of a market for broodlac in Southern India, about 1,670 lb. of brood lac were lent to the Mysore State and the Indian Institute of Science, Bangalore, on condition that they should return it whenever it is required by us. The value of 2,562 lb. of brood lac at Rs. 10 per 28 lb. (Tumkur rate)would come to Rs. 915.

The phunki lac, which was scraped and washed, has yielded about 400 lb. of grain lac and 65 lb. of Molemma. This stock alone at the current Calcutta rate is worth about Rs. 600.

Pruning experiments—Observations made.—When lac cultivation is newly started in a locality almost every host tree has to be pruned to get a framework of succulent shoots to serve as efficient food suppliers to the lac insect. So it was also decided to study the shoot-bearing habits of *Shorea talura* in response to different modes of pruning and done in different seasons to know the best method to which and the season when the trees respond most by sending out the largest number of vigorous shoots. Nearly 1,500 poles were pruned, some heavily some lightly and some moderately, during the different months of the year and kept under observation.

Observations made so far indicate the *Shorea talura* trees should generally be pruned two to three years before infecting them with the lac brood, and trees pruned during July–August and November–December have produced many and better shoots. Moderate lopping has given better results than light lopping ; heavy lopping should be avoided.

Schemes for lac cultivation.—A scheme for the introduction of systematic cultivation of lac on *Shorea talura* in North Salem district was drawn up and submitted to the Chief Conservator of Forests for sanction.

Information about the occurrence of the other important lac hosts, viz., *Schleichera trijuga, Butea frondosa* and *Zizyphus jujuba* and *Zizyphus xylopyra* in sufficient numbers in the different districts of this Presidency is being collected with a view to select suitable centres for starting lac cultivation on those trees as well.

Catechu.—At the close of last year an experiment to prepare cutch from *Acacia sundra* trees was carried out in North Cuddapah district. A Ranger who had some training of this work and two men who are reported to be experts in manufacturing catechu and specially engaged for this operation were in sole charge of this experiment. The work progressed for about three weeks when it was stopped as an unexpected difficulty cropped up due to the final extract not cooling rapidly and in its rolling into balls. The balls cracked badly and fell into pieces when handled.

In all 175 sundra trees were felled for the stills. Of these 170 trees were chipped yielding 4,959 lb. of chips. The total cost of felling and cleaning and of chipping the 170 trees was Rs. 15–8–0 and Rs. 15–10–0 respectively. twenty cart-loads of dry fuel were collected and transported to the kiln site at a cost of Rs. 18.

Four thousand nine hundred and fifty-nine pounds of red wood chips were boiled and they yielded 1,058 balls of catechu weighing 456 lb. The catechu prepared was of a low grade and may secure in the market about Rs. 160 per candy (560 lb.).

As the catechu balls were so brittle as to render their transport difficult it was advised that the stock may be disposed of locally.

Cassia auriculata.—To obtain Cassia auriculata bark from plants and coppice shoots of known ages and growing on different soils, with a view to determine their tanning contents and to know at what age they give the best tanning results, it was decided to grow them in plantations.

The first plantations were formed in 1927–28 in Gunda reserve, Hospet range, Anantapur district, and near Bairluti in Kurnool West district. Seeds were sown in furrows 4 feet apart and 6 inches deep during June 1927. The Gunda plantation contains a fair number of seedlings all over it. Growth is decidedly much better along deep furrows and by the streamlets running in the area. Tallest plants are over 3 feet high, have developed side branches and look well established. In the Bairluti plantation the operation was a failure as almost all the seedlings dried up in summer. As the area selected cannot be considered suitable for the purpose in view, it was since decided with the approval of the Conservator to abandon it and to carry out further sowings in the large, open, well-drained area close to the Range office at Pecheruvu.

During the year another 10 acres were sown in Gunda reserve, but due to the absence of rains for two weeks after the sowing was done, the germination was slow and in patches, which has led to several blanks in the plantation, especially in the gravelly soil portion.

In the 5-acre plot selected at Pecheruvu 18 measures of seeds were sown along the furrows at intervals of 4 feet. Since the ranger delayed the sowings till late in July, the expenditure incurred by him was disallowed by the Conservator. Germination was successful but during the summer many seedlings are reported to have died.

The total cost of ploughing, sowing and fencing the 10-acre plot in Gunda reserve was Rs. 20 annually. For the Bairluti plantation the cost of ploughing and sowing came to Rs. 16–4–0 but fencing and other contingencies costed Rs. 24–12–0.

An area of about 5 acres fairly stocked with *Cassia auriculata* shrubs in Bandri reserve, Anantapur district, was selected and demarcated. All the 410 cassia shrubs in it were coppiced in July 1928. At Pecheruvu, the 7 years old cassia shrubs in the old plantation were cut back during April 1928. It is reported that all the stools have sent out luxuriant shoots, each stool about 16 shoots on an average, varying in height from 1 to 4 feet and in girth from $\frac{1}{2}$ to $2\frac{1}{2}$ inches, and that most of these coppice shoots bear flowers and fruit this year.

Cassia fistula.—Next in importance to the well-known Avaram (*Cassia auriculata*) bark is the bark of *Cassia fistula* which is largely used in tanning hides. There is a large and regular demand for this valuable tanning bark, so much so, its whole output is consumed in Southern India itself.

The question of exploiting it regularly from the Government forests in this Presidency with a view to obtain a sustained yield of bark of a suitable and uniform grade for tanners was examined.

The Conference of the Conservators had decided that the planting of *Cassia fistula* for bark would not pay.

To determine the most economic rotation for exploiting this bark for tanning purposes, it was decided to carry out experiments to ascertain the age at which bark from coppice shoots contains the highest percentage of tannin and gives best tanning results. It was first proposed to coppice 100 trees annually during the next six years to get bark 1 to 6 years old. But it was subsequently found that the required number of coppice shoots of known ages could be had in the worked clear felled coupes. On the suggestion of the Conservator they were selected and numbered serially in coupes V to XI of Devancheruvu block 1. Bark from these shoots will be extracted and sent to the Leather Trades Institute for examination during next year.

Hopea parviflora bark.—The Leather Research Chemist who examined the Hopea bark sent the following report:—

"The bark is fairly rich in tannin. Next to wattle, myrabolams and divi divi, it is the richest of the South Indian tanning materials as seen from the table below:—

Material.	Tannin content.
Acacia decurrens—Wattle	35·7
Cæsalpinia coriaria—Divi divi	33·6
Terminalia chebula—Myrabolams	27·0
Hopea parviflora bark	25·4
Cassia auriculata—Avaram	16·6
Cassia fistula—Konnai	11·2

"The leather produced from this bark is of a fairly light shade but slightly more brown than is required for the South Indian Export Trade."

The Principal, Leather Trades Institute, Madras, added, "that the last results obtained with Hopea bark have been very satisfactory from the colour point of view. The leather however has not got exactly the feel required but I am trying to get this in subsequent lots."

Bark from the branches and the trunks of Hopea trees was analysed separately for their tannin contents. The branch bark gave 19·7 per cent of tannin whilst the trunk bark's tannin contents varied from 18·56 to 20·95 per cent.

For experimental purpose 10 tons of bark was supplied last year at Rs. 60 per ton. It was decided during the year to levy a seigniorage on this bark and to fix the rate at Rs. 75 per ton f.o.r. Kasaragod.

As the properties of this bark are becoming known, a demand for it is arising. Enquiries were received from well-known English firms asking whether regular supplies of this bark could be guaranteed. As such enquiries were also received direct by the Conservator, VI Circle, he has since decided to deal with this produce himself.

Wattle bark.—Imports of wattle bark from South Africa, chiefly Natal, into Madras increased from 800 tons in 1924 to 16,205 tons in 1928, and its price ranged from £11-12-0 to £13-8-9 per ton in the year under report.

This bark is not at present used by skin tanners, but it is reported to be used by practically every hide tanner in this Presidency. As the tanners have become accustomed to its use and supplies of this bark of a uniform quality are obtained readily by rail from Madras, it is being used to an increasing extent by the tanners, and consequently its import into Madras is expanding at a very rapid rate. Last year's imports alone came to 16,205 tons costing about Rs. 26,66,482.

There are grass areas on the Nilgiris and Palnis which are more or less suitable for growing *Acacia decurrens* (Black wattle). It was decided to lease out some thousands of acres in those grassy areas to private agencies for cultivating wattle.

Tamarind.—In Lower Godavari division the seigniorage on tamarind had continued for years at one anna per maund. The question of raising it was investigated in the last year and the Collector was advised to increase it to 2 annas per maund. The seigniorage was tentatively increased to one and half annas from 1st August 1928 and the Collector reminded about reviewing the question of raising it to 2 annas as originally recommended.

At one anna per maund the total seigniorage collected in 1927 was Rs. 22,534. The present increase of half an anna in the rate would bring in an additional net revenue of eleven thousand rupees annually.

Staff.—During the year under report, the Deputy Forest Utilization Officer was away from Madras Presidency from 1st August 1928 to 13th February 1929. He was deputed first to Behar and Orissa for 4 months to study lac operations in that province, and then to Dehra Dun for a period of two months for training in the Forest Research Institute (Minor Forest Produce Section). He was, however, in charge of the office throughout the year.

All the correspondence, typing, copying out of extracts and ledger filing and all other items of work of this section was carried out with the aid of my tour clerk.

X. Conclusion.

The work of the Forest Engineering branch has been much affected by the uncertainty of its future organization and it is hoped that a definite policy will be laid down by Government during 1929-30.

A detailed examination of the work accomplished during the period 1923-1929 will disclose many permanent benefits derived, the value of which can only be assessed during the years to come.

Large areas have been mapped and cruised, giving an accurate idea of the forest wealth existing in the more remote areas of the Presidency; indicating how and at what cost it may be extracted; and also clearly showing where Forest Research can best be applied if knowledge is to be gained concerning many species of timbers existing in large quantities but not yet used commercially.

The supply of sleepers to the railways has been organized and placed on a profitable basis.

The economic desirability of securing wider markets for forest products in other than log form has been demonstrated. The fullest return from forest management can never be attained unless this policy is followed and amplified in future years. If based on private industries rather than Government controlled concerns the result would be much better. Unfortunately however the inherent inefficiency of Government operation and the unfortunate uncommercial form in which the accounts have been presented have tended to alarm rather than encourage such private enterprise.

In any case the value of the work accomplished will be more appreciated 10 years hence than it is to-day.

The work of officers and staff merits high praise as only those in close contact with the work can realize the severe conditions under which it is accomplished and the many discouragements that continually harass the personnel.

Enclosure

SUMMARY OF PROGRESS IN THE FOREST ENGINEERING BRANCH DURING THE FIVE YEARS—1923-24 TO 1928-29.

The Forest Engineering Branch at the beginning of the period was just organized. A Forest Utilization Officer had been appointed and a Forest Exploitation Officer in charge of the Chenat Nayar Exploitation Division. The Logging Engineer had just started training men for mapping and cruising field work.

By the end of 1928-29 the organization had increased to four divisions, the Forest Utilization Division, and as Saw Mills and Extraction Division being added. Besides the ordinary divisional work an experimental wood workshop was being operated at Olavakkot under the Forest Economist and considerable work of a general nature was being done by the Chief Forest Engineer and his establishment. The supervising staff of the branch consisted of the Chief Forest Engineer, Logging Engineer, Forest Engineer incharge Saw Mills and Extraction Division, and four Imperial Officers.

(2) *Chenat Nayar Exploitation.*—A Saw mill and box plant were erected during 1924-25. By the end of 1928-29 the greater part of the Chenat Nayar reserve lying on the southern slopes of the hills had been logged. The value of sales of all the products of the operation had increased steadily to Rs. 2,58,400 in 1928-29. The costs of logging and milling were still being reduced and markets for the products were gradually becoming established.

(3) *The Logging Engineer.*—From early organization stages the Logging Engineer's Division had completed the intensive mapping and cruising of 93,174 acres of remote and inaccessible forest on an average scale of 300' to the inch.

The development scheme for the forests in the North Mangalore Division of South Kanara was in the final stages of preparation and that for the New Amarapalam Forest was nearing completion. The scheme for the development of the Tinnevelly Evergreen Forests was lying dormant pending a decision by Government as to whether they were going ahead with the Papanasam Power Development Scheme.

(4) *Utilization.*—This most important part of the general scheme of organization had gradually increased its activities until its annual turnover had reached 13¼ lakhs of rupees during 1928–29.

The business of supplying the railways with sleepers had been organized and built up from nothing to a supply of 38,070 broad-gauge and 18,650 meter-gauge sleepers with a total value of Rs. 3,72,422. This does not include the very considerable business done with the railways in the form of logs and sawn timber.

Arrangements had also been made to supply railway keys from teak waste pieces.

The contract in force with Messrs. Howard Bros. & Co., of London for the sale of logs and sawn material abroad was abrogated and a new and more favourable contract was in process of negotiation with a firm having head-quarters in the presidency. Sales of sawn scantlings increased from zero to a value of Rs. 3,71,600 during 1928–29.

(5) *Saw mills and extraction.*—During 1925–26–27 four portable forest saw mills were installed at Beypore, Pollachi, Chedleth and Parappa.

In 1928–29 these mills cut 248,355 cubic feet of logs from which 112,509 cubic feet of sawn timber were obtained. This was all sold in local markets and realized Rs. 3,97,003 gross.

(6) *Engineering and Construction.*—Late in April 1924 all general engineering work such as roads, buildings, water works, telephone lines, etc. was placed under the control of a Forest Engineer.

During the five years under review 26½ miles of metalled roads were constructed, eight residential buildings for District Forest Officers were completed, clerks quarters at Ootacamund were erected, the forest settlement at Topslip was built; Topslip water-supply system, Topslip-Pollachi Telephone line, Kodamadi suspension bridge and other smaller works were completed. Twenty-four miles of metalled roads were maintained and numerous surveys made and estimates prepared.

(7) The Forest Economist produced much valuable work during the period under review. A library, supplemented by ledger files, concerning all current scientific data bearing on the identification and utilization of tropical timbers, was started and maintained; such information was circulated periodically to Forest Officers; grading rules for logs and sawn timber were drawn up; log measurement tables with instructions for use were compiled and printed for distribution to all District Forest Officers and comprehension market reports for all of South India and the Bombay Presidency were prepared and are now being printed.

(8) The Deputy Forest Utilization Officer compiled much useful data on the production and marketing of minor forest products and after special training had made a start towards introducing the lac industry into Madras.

(9) *Administration.*—Mr. C. S. Martin held charge of the Forest Engineering Branch from its inception until he took leave on September 1926. From then until 1st June 1927 Mr. J. K. Pearce was Chief Forest Engineer, Mr. Martin resuming charge from the latter date to the end of the quinquennium.

(10) The principal results of the work reviewed have been; the training of permanent members of the Forest Department in the preparation of

data on which working plans and large extraction estimates may be based; and in the operation of both mechanical extraction and forest saw mills.

The organization and gradual increase of direct business with the railways, in sleepers, logs, and sawn scantlings has had a very important bearing on the increase in revenues.

Another important development has been the disposal of all old surplus accumulations of logs by the use of portable saw mills. The log supply is now controlled by market demands and prices as there is always an alternative outlet for the logs in the form of sawn outturn from the mills. Also wider marketing information is being obtained and local rings of buyers do not exercise the influence they once did in keeping sale prices to a low level.

Markets are also being built up for sawn timber and there is now a wider and more general demand for the products of the forest.

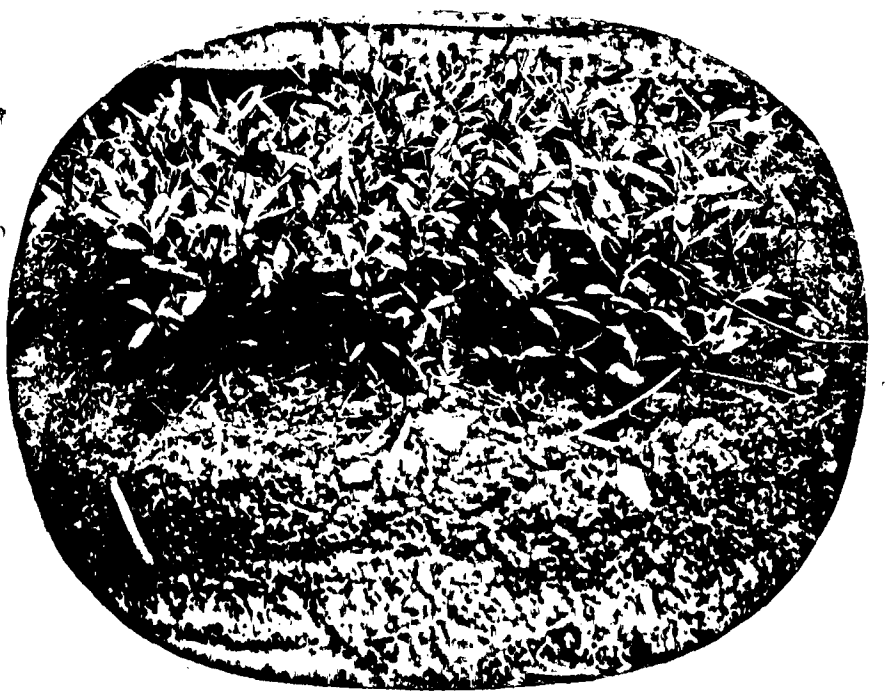
(11) Direct financial results are difficult if not impossible to arrive at but it may be noted that the average financial position of the divisions in which forest saw mills were located has improved by several lakhs of rupees over the preceding five years.

C. S. MARTIN,
Chief Forest Engineer.

MADRAS,
14*th August* 1929.

FOREST DEPARTMENT, MADRAS

ADMINISTRATION REPORT
FOR THE YEAR ENDING 31st MARCH 1930



SANDAL SEEDLINGS, ONE MONTH OLD, RAISED IN A DUMP.

VOLUME I

MADRAS
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1931

Price, *Rupees* 2-8-0.]

BOMBAY BRANCH
OF THE
Royal Asiatic Society.

Government of Madras

DEVELOPMENT DEPARTMENT

G.O. No. 2261, 22nd December 1930

Forests—Administration Report for 1929–30—Recorded with remarks.

Order—No. 2261, Development, dated 22nd December 1930.

Recorded.

2. In the review on last year's administration report, it was mentioned that Government had not yet come to a decision regarding the future of the saw mills at Chedleth and Beypore and that the abandonment of the operations at Chenat Nair and some of the saw mills had created the necessity to undertake a wider and more detailed examination of the future policy that should be followed hereafter in the matter of the forest administration in general in this Presidency. Government have not yet come to a final decision on these questions but on examining the reports on the financial propects of the saw mills it was found that the mill production costs were very high and that the market was more favourable for the disposal of timber in the log than of sawn timber, especially in the case of the popular species like teak. It was found that unless the cost of transport and milling could be considerably reduced—and this was not possible—the mills could not work at a profit. The Government have therefore come to the conclusion that it is not worth while continuing the milling side of the existing exploitation operations and they have accordingly ordered their closure. The following are the dates on which the various mills ceased to work:—

Olavakkot	5th November 1929.
Top Slip	31st December 1929.
Beypore	22nd May 1930.
Chedleth	31st March 1930.
Parappa	31st March 1930.

(The Russellkonda Saw Mill was already closed in July 1928.)

3. The Government note with interest the steps taken by the department for the introduction of lac in more districts in the Presidency and the success attained in regeneration operations.

4. Investigation into the spike disease in sandal is continued at the Indian Institute of Science, Bangalore. The Government have since the close of the year sanctioned the continuance of these

investigations for a further period of three years from October 1930. The question is also being studied on the entomological side by the Forest Research Institute, Dehra Dun, and this Government propose to pay a subsidy towards its cost.

5. The figures of forest offences show no important variation. The Chief Conservator has however observed that investigation by District Forest Officers and Range Officers into cases of forest offences was on the whole unsatisfactory and has impressed upon them the importance of this branch of work. The Government trust that this work will receive increased attention in future.

6. All the forests classified as fit for panchayat management have been handed over to panchayats, the total area being 3,383 square miles.

7. The future of the Forest College at Coimbatore is under the consideration of Government.

8. The Government observe with interest the good progress made in the amelioration of the jungle tribes of the Presidency.

9. The Government also note with satisfaction that the improved financial results shown in the working of the department in the last year have continued during the year under review. The revenue and expenditure including the net results of the transactions relating to commercial concerns amounted to Rs. 59·89 lakhs and Rs. 44·54 lakhs respectively against the corresponding figures of Rs. 58·94 lakhs and Rs. 45·85 lakhs in 1928–29. There was thus a surplus of Rs. 15·35 lakhs which is a further improvement over the financial results recorded in the last year's report.

(By order of the Governor in Council)

S. V. Ramamurti,
Secretary to Government.

To the Chief Conservator of Forests.
" Accountant-General.
" Board of Revenue.
" Secretary to the Government of India, Department of Education, Health and Lands (with C.L.).
" Inspector-General of Forests (with C.L.).

Press

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Proceedings of the Chief Conservator of Forests

Proceedings No. 545, Press, 23rd October 1930

Administration Report—Forest Department, 1929–30.

R. D. RICHMOND, Esq., I.F.S.,
Chief Conservator of Forests.

Proceedings—No. 545, Press, dated 23rd October 1930.

CHAPTER I.—INTRODUCTION.

The principal events of the year have been the closing down of the intensive exploitation work in the Chenat Nair forests, the Olavakkot saw mill, with wood workshop, and the saw mills at Parappa, Beypore, Topslip and Chedleth, while exploitation of timber by the ordinary methods has been extended.

2. Useful experience, if at considerable cost, has been obtained through the Chenat Nair operations; but it was evident that the methods involved by mechanical extraction are unsuited to forests of this class; also that, although a sale could be found for the material produced, it would be impossible to bring the production costs within reasonable distance of sale values. The work was efficiently carried out and credit is due to those responsible for its execution. Other methods of working more suited to the type of forest involved have been introduced and it now appears certain that it is possible to work the West Coast evergreen forests profitably, without interfering with their character—a vital point—while at the same time improving their quality.

3. It was impossible to advocate the continued running of the saw mills. In spite of increased efficiency and a reduction of operating costs, also after discounting charges imposed upon them which they should never have been called upon to bear, it was clear that the only species which could be milled at a profit was teak, while it paid better to sell teak in the log.

4. It is not to be thought, and it is desired to lay very great stress on this matter here, that with the abandonment of these enterprises the work of the permanent staff is reduced. Very much the contrary is the case. The special establishment

recruited and employed on these special works has been disbanded. Six major gazetted posts have been retrenched. But there is no reduction of work, which is, indeed, steadily expanding and will continue to do so as progress in the preparation of working plans proceeds, and the territorial officer's work has in fact increased. The closing of the saw mills does not imply any reduction in exploitation; it merely means that the District Forest Officers now attend to the whole of a work on which they previously had some assistance. And the work, all over the province, with which the specialist officers had no concern, goes on and develops, providing no reason for a general reduction of establishment all round on the score that the activities of the department are now curtailed with the abandonment of exploitation on one small area by a special agency and the closure of five saw mills. The development of the work of the department everywhere is amply reflected in the satisfactorily expanding net revenues, while much progress is being made in the preparation of ordered schemes of management after detailed examination of the areas to which they apply. Without properly considered working plans there cannot be efficient forest management and money so spent is well spent. A criticism levelled at the department at the last budget meeting of the Legislative Council was that steps to ascertain what the forests contain were not being taken, but this is just precisely what is being done. Government very pertinently remarked in recording the report for 1926–27: "It is sufficiently evident that no scheme to develop a forest can safely be undertaken until it is known what that forest contains and until a working plan for the extraction of timber has been drawn up."

A very valuable property is being built up and a satisfactory revenue is being realized in the process. The strength of staff, of all ranks, as recommended after the closest consideration following the transfer of certain areas to panchayat management and of the abolition of the specialist posts, is barely sufficient for the work to be done if even the present position is to be maintained and, if the costs of administration appear high when compared with those in some other provinces, it is to be remembered that conditions and circumstances vary and that the scattered nature of the forest areas renders administration difficult. Forests every country must have, they must be protected and developed so that the people may obtain the maximum benefits from them, but the financial end should not be the sole consideration in this regard and it will be impossible to maintain the present position, let alone development, if further retrenchment is attempted.

5. Certain forest divisions and parts of divisions continue to have their accounting conducted on commercial lines and are

subject to commercial audit, while some are even required to keep two sets of accounts, one set on the ordinary lines and another on commercial lines. The results are unhappy.

The accounts work of an office with one commercial accountant will break down when that accountant is, for any reason, absent; an officer joining the commercial division for the first time will spend much time, which should be devoted to outdoor work (which is, after all, what is productive of results) in mastering a method in which he is untrained; commercial accounting has not brought with it the freedom of commercial practice; there is less accounts control than under the ordinary methods; audit reports are not received until months after the close of the year to which they relate; arbitrary distributions of expenditure, incurred in the same concern, to various activities often result in the accounts being little more than estimates, while an immensity of vexatious work is caused by the meticulous examination of details in the report—such examination and correspondence in connexion with it continuing for very many months. That enterprises such as saw-milling should be conducted on strictly commercial lines admits of no question and there should be the closest control over all expenditure, but it is evident that forest divisions, or parts of them, do not lend themselves to commercial accounting and, while audit on commercial lines of certain activities may be useful, it will be more useful if it is over a period of years rather than annual. A present tendency is to regulate the work for the convenience of accounting rather than to regulate the accounting to serve the work. And it has never been clear why commercialization should have been limited to certain divisions, and parts of divisions. If it is worth while in any it is worth while in all. Not that its introduction is advocated, very much the contrary, and it is regretted that it has not yet been possible to give effect to the agreement reached over three years ago for the abandonment of commercial accounting in forest divisions.

Also, if the Forest department is to be treated as commercial and the results of its work are to be judged on this basis, it is obvious that the sales at concession rates to industries, free grants, and the like, should be made good to it. Philanthropy and commercialism do not go hand in hand.

6. There was a slight increase, to 2,751,000 cubic feet, in the amount of timber exploited from reserves under departmental management, of which 1,954,000 cubic feet, a little more than last year, was extracted by departmental agency. The

quantities would have been greater but for restrictions of sal fellings in Ganjam until the disposal of the timber rejected by the Russellkonda mill. The timber output of the Wynaad, Nilambur and Palghat increased by 315,000 cubic feet.

The total quantity of timber and fuel exploited from departmental areas amounted to 20,157,000 cubic feet, an increase of 1 per cent.

The quantity of sandalwood extracted increased from 579 to 707 tons—only dead trees, the majority of which have been killed by spike, are exploited.

7. There has been some increase in the quantity of unsold stocks of timber. A lakh of cubic feet of sawn material remained to be disposed of at the end of the year. This is gradually being got rid of, but the general trade conditions are unfavourable. The stocks in the Wynaad increased by more than double; the reason being that the transport available was unable to cope with the increased quantities the extraction of which was found possible as a result of the new working plan. This was the more unfortunate in that good prices were obtained for such timber as was transported. There is no indication that there is overproduction, but the Wynaad fellings have been restricted for the time being.

8. Without taking account of bamboo fellings which extend over very large areas, 564,746 acres of reserved and other forests under departmental control were worked over by the following methods :—

	ACS.
Clear felling, timber	1,778
Clear felling, coppice	27,857
Selection felling	372,150
Coppice with standards	4,960
Improvement fellings	158,001

9. There was a reduction in the prices obtained for Nilambur teak, but the suspension of milling this species in favour of selling in the log resulted in better financial results than in the previous year.

The immediate future is uncertain though it is likely that the value of timber will show a temporary reduction, in common with all other commodities and, particularly if the price of sandal shows a marked decline in the current year, the financial effect may be serious, a discouragement following the much improved position of the last two years.

SANDAL FIVE YEARS OLD.

10. Side by side with the development of exploitation, the aim being to work every acre of forest to its fullest capacity by the most suitable means, has gone progress in regeneration by artificial means where nature cannot be relied upon. No further difficulty is experienced at Nilambur, valuable plantations are from year to year created in the Wynaad, South Kanara and South Coimbatore while work of equal value, if on a smaller scale, is being done in Upper Godavari, Lower Godavari, Nellore, Tinnevelly, Palghat, Kurnool and other divisions. The research work done in the evergreens is beginning to bear fruit and allows of exploitation being conducted in forest of this class while, if success has not always attended the very considerable efforts made, the areas under sandalwood are gradually being extended. Valuable work of a protective nature is achieved by the establishment of a forest crop in the Teri of Tinnevelly. A pressing problem, to which too little attention has been paid in the past, is the improvement of the forests on which the people depend so much in the drier parts of the country—a little is being achieved but centralized research is required and for this there is at present no staff.

CHAPTER II.—WORKING PLANS.

11. Working plans for 1,661 square miles were sanctioned in the year, plans for an area of 1,971 square miles were put in hand and, at the end of the year, there remained 3,686 square miles for which it was not yet possible to undertake the preparation of plans.

12. The working plan for the Nallamalai forests of the West Kurnool division was completed and the revision of that for the Ghumsur sal forests in Ganjam was nearing completion. Further progress has been made in the revision of the Mount Stuart Working Plan and in the preparation of plans for South Mangalore, North Coimbatore, Chenat Nair, Dhoni and the Silent and Attapadi valleys in Palghat. The preparation of a working plan for the ghaut forests of the Wynaad division has been taken up while that for the North Mangalore division has been included in the activities of the party employed on the South division plan. Inadequacy of staff accounts for the slow progress.

13. The Logging Engineer continued to work on the New Amarampalam project. The field work was completed in May 1929. During the monsoon the work of mapping the areas topographically surveyed and the compilation of the enumeration figures was completed.

14. A number of less important working plans were prepared by District Forest Officers or Assistants working under the local Conservators. Consolidated working plans for Anantapur and Kurnool East and a plan for the Kondapalli reserved forest in Guntur were completed and sanctioned and a plan for the Gundalakamma and Giddalore ranges in the Kurnool South has received sanction since the close of the year. A revised scheme for sowing *Acacia sundra* in Coondapoor range in North Mangalore has also been sanctioned. A revised plan has been received for the Thadagam, Annikatti and Bolampatti Block III forests in the Palghat division. Revised plans for the Sriharikota and Sathiavedu ranges in Nellore are still under scrutiny. No explanation is forthcoming from the Conservator, First Circle, for the delay in the completion of the former. A consolidated working plan for the Yerramalais in Kurnool West neared completion and work on that of North Salem was begun. The revision of the tentative working plan for Tinnevelly is in progress.

15. The working plan for the Cuddapah South division has been completed and a plan for the hill areas in the New Amarampalam reserve of Amarampalam range in Nilambur division is in progress. The preparation of the consolidated working plans for the Central and South Salem divisions was completed during the year, but the plans are being revised in the light of instructions given by the Chief Conservator.

16. Simple schemes were framed for working the sal areas in the Palkonda range of Vizagapatam, the *Hardwickia binata* areas in Upper Godavari and the fuel coupes in Virupakshi section in Palni range of the Madura division.

17. The Working Plans Conservator continues to scrutinize all plans, whatever the agency of preparation.

18. The annual control returns are checked by the territorial Conservators and finally scrutinized by the Working Plans Conservator and, as a result of this double check, control of working plan prescriptions is much improved.

19. It must be understood that many of the plans are of a purely tentative nature, providing some ordered method of working until it is possible to provide the staff for the preparation of something better. The matter is one of prime importance to development and the conservation of the forests. Very great progress has been made since the employment of a special agency and the institution of a Working Plans branch is the most important item of progress made for many years.

CHAPTER III.—UTILIZATION.

(i) SUPPLY OF PRODUCE.

(a) *Timber.*

20. The total output of timber was 96,920 tons or 3·5 per cent less than the figure for the previous year. The details are—

Removed from	By Government.	By Purchasers.	By free grantees.	By right-holders.	Total.
	TONS.	TONS.	TONS.	TONS.	TONS.
Reserved forest, leased forest and reserved lands	39,080	14,720	1,200	20	55,020
Unreserves	540	38,320	2,700	340	41,900
Total ..	39,620	53,040	3,900	360	96,920

The quantities of timber and fuel exploited from departmental forests showed a small increase. Although there was on the whole a slight increase in extraction by departmental agency there was a decrease in the outturn of timber extracted by this agency in the First and Fifth Circles. In the First Circle it was due to the reduction of departmental extraction in Ganjam (some clear-felled areas were sold standing to contractors) and in the Fifth Circle to a smaller quantity felled in the Mount Stuart Working Circle. This was set off by a large increase in the Sixth Circle due to the working of larger areas in the Wynaad and Nilambur according to the revised working plan and to the extended sleeper operations in the Silent Valley of the Palghat division.

21. The increase in extraction by purchasers was principally in the First and Sixth Circles, due to larger removals from unreserves and to the sale of timber coupes in Ganjam.

22. The quantity of departmentally collected timber undisposed of at the end of the year in forest and sale depots was 1,358,000 cubic feet as against 1,255,000 cubic feet in the previous year. The accumulation was principally in the Wynaad due to the existing transport arrangements being unable to cope with the increased output.

(b) *Fuel.*

23. Two lakhs seventeen thousand five hundred and seventy-five tons of fuel were removed from reserved forests of which 15,125 tons were by departmental agency. The outturn from

unreserves is recorded as 23,562 tons. The decrease in the output by departmental agency (3,994 tons) was principally due to the fact that, with the suspension of departmental fellings of timber, there were no top portions of trees available for sale as fuel in Ganjam and to less demand of fuel for Public Works Department steamers in Upper Godavari, to the replacement of departmental work by contract agency chiefly in Kurnool West, and to there having been no departmental working of coupes in Tinnevelly and South Coimbatore as in the previous year.

24. The increased removal by purchasers is due to the sale of a larger number of fuel coupes, including arrears, in the Second Circle and in the Fifth Circle due to large outturn from fuel coupes and to the leasing of four fuel coupes which were worked departmentally in the previous year.

25. Good progress was made in the Second Circle in the opening up of new felling areas and there is generally better attention to the need for affording the people facilities to obtain what they need in a legitimate manner.

(*c*) *Bamboos.*

26. The value of bamboos removed from the forests by all agencies during the year was Rs. 4·55 lakhs against Rs. 4·05 lakhs in the previous year. The increase was marked in the First, Second and Fourth Circles and was mainly due to keener competition at the sales of bamboo coupes in Lower Godavari, in the three Kurnools, Cuddapah South, Chittoor and South Salem, to the areas sold in the three Kurnools and Cuddapah South being well stocked with bamboos and also to larger removals from Rampa and other unreserves in Lower Godavari.

(*d*) *Sandalwood.*

27. Seven hundred and seven tons of sandalwood were sold for Rs. 9,86,618 as against 579 tons for Rs. 8,59,693 in the previous year. The average price realized was Rs. 1,395 per ton as against Rs. 1,485 in the previous year.

28. The increase in the quantity exploited is due to the larger yield of dead wood in North and South Salem and Vellore, the working of arrear coupes in North Salem and the extraction of about 65 tons of greenwood in Vellore. The yield naturally varies according to the number of dead trees, which are alone extracted, though a start has been made in obtaining green trees from private owners, as a measure of protection from the illicit dealer. It is interesting to note that the wood of green trees realized as much as Rs. 120 per ton more than dead wood. It is

SANDAL, TEN MONTHS OLD, RAISED WITH FIELD CROP.

sometime since the department last marketed the wood of green trees, attention being fixed on removing trees which have died of spike.

(e) *Grazing.*

29. 11·56 per cent of the forests managed by the Forest Department was closed to grazing either throughout the year (11·37 per cent) or for part of the year (0·18 per cent). Grazing permits were issued for 1,649,805 animals as against 1,672,257 in the previous year. It is reported that permits were issued for 991,504 animals for grazing in panchayat forests. During the year, 84,591 animals grazed free of charge in the areas under the departmental control as against 80,575 animals last year, an increase which has not been accounted for. Officers should be aware that those entitled to free grazing will make a practice of including in their herds the animals of those who are not so privileged. In the forests under panchayat management, 4,582 animals are reported to have been allowed free grazing. The revenue foregone by allowing free grazing and grazing at concession rates was Rs. 43,041.

30. The average incidence of grazing in the reserved forest under the control of the Forest department works out at 5·7 acres per animal as compared with 5 acres in the previous year, the figure being as low as 2 in Lower Godavari and 3 in Guntur. These figures taken with the fact that grazing is generally concentrated in the forests which are nearest to the villages and most easily accessible reveal that too many animals are admitted to reserved forests and that a reduction in the grazing incidence is urgently called for. Enhancement of grazing fees was suggested as the most effective means to reduce this high incidence. Government have been unable to agree to this. All that can be done is to prohibit grazing altogether where it is detrimental, so that, even a limited number of cattle cannot, though it might reasonably be, admitted to a particular area, which would be overgrazed only if grazing were unlimited. In practice effect has not yet been given to the new orders, restrictions being considered impolitic at the present time. Other steps for the discouragement of grazing were to be—

(1) the encouragement of cutting of grass in forests—this to be allowed free; and

(2) as an experiment, in certain places cattle might be stall-fed in, or on the edge of the forest, on cut grass.

No advance can of course be made in stall-feeding as long as there is unrestricted grazing at nominal rates. But, when the

closure policy is put into force, a demand for grass-cutting may arise and it should then be worth the while of the owners of the more valuable cattle to stall-feed them in or on the edge of the forest.

(f) Minor forest produce.

31. The right to collect minor forest produce was leased out as usual except in a few cases where it was collected departmentally. The revenue derived in the year under this head was Rs. 9,02,688 (Rs. 3,50,122 from reserved forests) as against Rs. 8,82,756 in the previous year. The increase was due to the larger collection of minor produce and better prices realized in Nellore, the larger revenue realized under 'tree owners' fees' in the Second Circle and to the favourable prices obtained for tamarind leases in unreserves in Vellore and Central Salem. The increase was also due to a good crop of tamarind in Rampa and to the enhancement of seigniorage on tamarind from As. 1–6 to 2 annas per maund in the Lower Godavari division. The decline in the value of Cassia auriculata bark will result in a loss of revenue under this head.

32. The cultivation of lac was continued in the North Salem division. For want of sufficient trees with suitable shoots, the actual cultivation had to be restricted in 1929–30 and was carried on only on a few trees chiefly to conserve and develop the brood and to train the local staff in this work. Experiments were undertaken in Central Salem, North Coimbatore and Madura.

33. The necessity for the provision of facilities for the removal of green leaf for manure continues to be a source of embarassment to the department. During the year it was proposed to restrict the supply of manure leaf in reserved forests under the control of the Forest department with a view to its final cessation after a period, but Government declined to sanction the proposal. It is naturally impossible for any area to bear unlimited grazing, the collection of manure leaf, to produce wood and to remain as a forest for long.

(g) Removal of forest produce by free grantees and right-holders.

34. The estimated value of forest produce removed by free grantees and right-holders amounted to Rs. 73,389 against Rupees 1,25,840 in the previous year. The above does not take into account the value of produce removed under the concessions allowed to the ryots all over the South Kanara district. The decrease was chiefly in the First Circle and was due to the fact that in the previous year extensive free grants had been made in Nellore for the reconstruction of houses destroyed by the cyclone of November 1927. Most of the free grants in the year under report were for rebuilding houses destroyed by fire.

(ii) COMMERCIAL UNDERTAKINGS.

(a) Chenat Nair (including the Olavakkot Saw Mill).

Period from 1st April to 31st October 1929 on which date the saw mill and concern were closed.

" 35. The total quantity extracted was 149,517 cubic feet of which 30,755 cubic feet were converted into hand-sawn sleepers and 424 cubic feet of logs were sold in log form, 46,839 cubic feet were carted to Olavakkot.

36. The cost of log production was Rs. 1–8–7·3 against As. 15–6 in the previous year. The direct cost of production increased from As. 12–6 to Re. 1–3–0 and the overhead charges from 3 annas to As. 5–8.

37. Three thousand three hundred and four broad gauge and 2,906 meter gauge sleepers were produced and supplied to the railways, besides 643 special size sleepers (8 ft. by 8 in. by 5 in.) sold to the Public Works Department at a profit.

38. Forest sawn scantlings realized a profit of Rs. 737. Bamboos and fuel showed a profit of Rs. 3,203.

39. The timber used in the saw mill amounted to 37,632 cubic feet. The outturn was 19,670 cubic feet, the percentage being 52·3 against 57·9 in the previous year. The cost of conversion was Rs. 2–4–1 per cubic foot against As. 11–7, the increase being due to the breakdown of the main engine and the consequent stoppage of work for two months. The total cost of sawn timber was Rs. 4–11–2 against Rs. 2–6–5 in the previous year. In the case of seasoned material the cost amounted to Rs. 5–6–4. The average all-round selling price was Rs. 1–8–5, the sawn timber trading showing a loss of Rs. 63,972 (to which must be added a further loss of Rs. 8,255 on box manufacture) and the total loss on the Chenat Nair concern after taking credit for the hand-sawn timber extraction and other profitable items was Rs. 86,085 up to 31st October 1929.

40. But the recorded loss if regarded as that of the year is in excess of the true figure—the transactions after 31st October 1929, although the material with which they were confracted related to the activities of the concern, not being taken into account by audit. The sales and expenses of the Forest Utilization Officer relating to mill-sawn timber are however for the whole year ending 31st March 1930 as no separation was made in his books of transactions subsequent to 31st October 1929. As the saw mill was closed with effect from 1st November 1929 the stocks sold by the Forest Utilization Officer after 1st November 1929 and held in stock by him on 31st March 1930 have been taken as belonging to

the stock of the concern on 31st October 1929. The hand-sawing operations including sleepers and the extraction of logs were continued up to 31st March 1930, resulting from 1st November 1929 to 31st March 1930, in a surplus (excess of receipts over expenditure) of Rs. 55,934, without account being taken of overheads.

(*b*) *Mount Stuart* (*including the mill at Topslip*).

41. The total quantity of logs extracted was 128,470 cubic feet against 132,095 cubic feet in the previous year. Of this quantity 73,192 cubic feet were carted to the Pollachi depot and 39,119 cubic feet handed over to the saw mill. The cost of production and delivery at the mill was As. 13–0·2 and at Pollachi was Re. 1–1–8, almost the same as in the previous year. The overheads were As. 7–11 against 8 annas in the previous year.

42. Apart from some small quantities of inferior timber sold in the forest the log sales were held at Pollachi, where 85,784 cubic feet of teak and other species were sold at an average rate of Rs. 1–10–5 per cubic foot against Rs. 1–13–6 in the previous year.

43. The intake of the mill was 43,930 cubic feet and the outturn was 18,908 cubic feet, the percentage being 43·04 against 34·8 in the previous year. The cost of producing sawn timber was Rs. 3–7–11·16 of which the direct milling charges amounted to As. 13–9·15 and the all in cost of sawn timber including cartage and the selling expenses of the Forest Utilization Officer was Rs. 4–6–9·16 against Rs. 5–9–9·64 in the previous year. Fourteen thousand two hundred and thirty-one cubic feet were sold at an average rate of Rs. 1–11–4 per cubic foot.

44. The net profit of the Mount Stuart commercial concern including the mill, was Rs. 33,330 against a loss of Rs. 24,662 in the previous year. The mill showed a loss of Rs. 37,557.

45. The Topslip mill was closed on 31st December 1929.

(*c*) *Nilambur* (*including Beypore Saw Mill*).

46. The total quantity of timber extracted was 326,818 cubic feet as against 298,224 cubic feet in the previous year. The output consisted of 108,599 cubic feet of teak and 218,219 cubic feet of miscellaneous species. The cost of extraction and delivery at Beypore was As. 4–10·7 for logs from the plantations as against As. 8–10·97 in the previous year. The cost of logs from the natural forests of Nilambur was As. 7–4·6 against As. 8–7·06 in the previous year; the cost of teak from the Amarampalam range was As. 9–6·3 against As. 12–7·61, and for miscellaneous species As. 10–4 against As. 11–4·32 in the previous year. There was a reduction in the overheads from As. 2–0·6 to As. 1–8·4. The

reduction in the cost of production reflects great credit upon the District Forest Officer, Mr. R. S. Browne.

47. One thousand one hundred and thirty-eight cubic feet of teak logs were sold in the forest at an average rate of Re. 1–0–1 per cubic foot; 62,271 cubic feet of teak poles at As. 8–10 per cubic foot and 34,104 cubic feet of miscellaneous species at As. 4-3 per cubic foot. The forest trading showed a profit of Rs. 26,405.

48. Eighty-eight thousand two hundred and thirty cubic feet of plantation teak was sold in the log at Beypore depot at an average for all classes of Rs. 1–14–7; 4,487 cubic feet of natural teak at Rs. 1-15-0; 66,002 cubic feet of miscellaneous species including measurables and poles were sold at varying rates. The all-round average rate obtained was Rs. 1–8–8 per cubic foot. The log sales resulted in a profit of Rs. 1,18,504.

49. Sleeper operations by hand-sawing were also carried on. Four thousand and sixty broad gauge sleepers and 1,254 metre gauge sleepers were produced. Hand-sawn sleeper trading resulted in a profit of Rs. 14,320.

50. Eighty-five thousand eight hundred and sixty-five cubic feet passed through the Beypore Saw Mill; the outturn obtained was 48,677 cubic feet, the percentage of outturn being 56·7 against 52·6 in the previous year. The better outturn was due to a greater quantity of *Terminalia paniculata* timber sawn up, the logs being very fine ones. The total cost of sawn timber decreased and the all in cost of sawn timber including the Forest Utilization Officer's selling expenses was Rs. 2–4–4·1 per cubic foot against Rs. 2–8–4·90 in the previous year. The average sale price realized was Rs. 3–0–4 per cubic foot. The result of sawn timber trading was a profit of Rs. 25,727. The overseas trading resulted in a profit of Rs. 1,818. Excluding items such as interest on capital debitable to the profit and loss account Rs. 15,585, the working of the year resulted in a net profit of Rs. 1,71,189 against Rs. 1,24,370 in the previous year. The Beypore Saw Mill has been idle since the 31st March 1930. While it has not justified its existence in respect of teak, it would usefully have been continued for the conversion of *Terminalia paniculata* of which there was a considerable quantity of accumulated stock. A suggestion that the mill—the present value of which is very low—be leased to a prospective purchaser of excess Terminalia stocks was not approved of by Government.

(*d*) *The Wynaad forests (including the Chedleth Mill).*

51. The audit report has not been received but an advance copy of the profit and loss account received from the Assistant Director

of Commercial Audit shows that the transactions (including sawn timber trading) resulted in a net profit of Rs. 1,11,401 against Rs. 1,18,034 in the previous year. The saw mill, which was closed on the 31st March 1930, was responsible for a loss of Rs. 48,345.

(e) *Parappa Saw Mill.*

52. The intake of the mill during the year was 86,944 cubic feet and the outturn of sawn material was 50,001 cubic feet or 57·5 per cent against 46·7 per cent in the previous year. The cost of sawing per cubic foot decreased from As. 11–0·5 to As. 8–0·7. The cost of production at Kasaragod depot was Rupees 1–13–4 per cubic foot and the average selling rate was Rs. 1–9–11. The mill was closed on 31st March 1930, the Parappa forests being exhausted and investigation showing that it could not be profitably employed elsewhere.

(f) *Overseas trade.*

53. The subjoined statement shows the sales in the overseas market during 1929–30 :—

Through Messrs. Peirce, Leslie & Co.

	Quantity cubic feet.	Gross amount.	Rate per cubic foot.	Forest Utilization officer's and District expenses.	Profit or loss per cubic foot.
		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Teak scantlings ..	974	4,490 10 8	4 9 9	2 6 10	+ 2 2 11
Rosewood logs ..	347	1,183 3 3	3 6 7	2 1 0	+ 1 5 7
Laurel logs	3,699	4,403 7 7	1 3 1	2 1 0	— 0 13 11
Direct sales by the Forest Utilization Officer.					
Teak logs	161	584 8 0	3 10 1	2 1 0	+ 1 9 1
Rosewood logs ..	198	1,052 0 0	5 5 0	2 1 0	+ 3 4 0
Laurel logs	5,914	18,623 5 5	3 2 5	2 1 0	+ 1 1 5

Of the Forest Utilization Officer's direct sales, 42 cubic feet of teak, 3,064 cubic feet of laurel, and 167 cubic feet of rosewood were sold to Messrs. Mallinson & Sons, London, on trial orders. One thousand two hundred and thirty-four cubic feet of laurel, and 31 cubic feet of rosewood were sold in the American market, and 1,616 cubic feet of laurel, and 119 cubic feet of teak were sold in Colombo. The sales in America resulted in a net profit of Rs. 4–15–0 per cubic foot of rosewood and Rs. 2–1–0 per cubic foot of laurel, and those in England in a net profit of Rs. 2–15–0 for rosewood, As. 2–9 per cubic foot of laurel, and Rs. 1–15–0 per cubic foot of teak.

(g) *General.*

54. The Forest Exploitation Officer at Olavakkot continued in charge of the Exploitation of the Chenat Nair forests and of the saw mill at Olavakkot and of the general engineering work of the department.

55. The Forest Engineer in charge of the Saw Mills and Extraction Division continued in charge of the saw mills at Topslip, Beypore, Chedleth and Parappa, the Central Stores at Olavakkot, the Kal Ar Valley sleeper project and mechanical extraction at Nilambur.

56. In Nilambur, the Mechanical Extraction section operated from 1st April 1929 to 30th November 1929 when it had to close, there being no more work ready. The total quantity yarded was 69,471 cubic feet and the cost worked out to As. 3–2·8 per cubic foot.

57. The Forest Utilization Officer continued to organize, coordinate and conduct sales of logs, scantlings and sleepers and held control of the depots at Beypore, Pollachi, Olavakkot, Kasaragod and Nanjangod. The South Indian Railway and the Buckingham and Carnatic Mills were supplied with 10,703 cubic feet of teak.

58. Mr. V. Rajagopala Acharya worked as agent according to the terms of the revised agreement till 14th November 1929 when his agency was terminated. He handled 99,668 cubic feet valued at Rs. 1,98,569. Messrs. Namberumal Chetti & Sons took up the agency from 15th November 1929 and dealt with 14,414 cubic feet valued at Rs. 31,235.

59. The sales effected by the Forest Utilization Officer during the year are compared with those of the previous year :—

Year.	——	Quantity.	Amount.	Rate per cubic foot.
	Logs.			
		C. FT.	RS.	RS A. P.
1928-29.	Teak	1,25,043	3,18,170	2 8 8·56
	Other species	1,10,540	1,26,890	1 2 4·4
	Total ..	2,35,583	4,45,060	1 14 2·72
1929-30.	Teak	1,67,614	3,75,529	2 3 10·16
	Other species	1,13,093	1,27,519	1 2 0·48
	Total ..	2,80,707	5,03,048	1 12 8·08

Year.	——	Quantity.	Amount.	Rate per cubit foot.
	Sawn timber.			
		C. FT.	RS.	RS. A. P.
1928-29.	Teak	87,695	2,81,894	3 3 6
	Other species	53,433	81,865	1 8 6
	Total ..	141,128	3,63,759	2 9 3
1929-30.	Teak	59,679	1,69,426	2 13 5
	Other species	79,922	1,01,902	1 4 5
	Total ..	139,601	2,71,328	1 15 1

Total sales.

——	Logs.	Sawn timber.	Sleepers.	Miscellaneous.	Total.
	RS.	RS.	RS.	RS.	RS.
1928-29	4,45,060	3,63,759	3,72,421	76,595	12,57,835
1929-30	5,03,048	2,71,328	3,96,939	45,953	12,17,268

60. 41,234 broad gauge (first class) and 13,733 meter gauge sleepers (first class) were passed in the year against 37,646 broad gauge (first class) and 18,048 meter gauge (first class) in the previous year.

CHAPTER IV.—SILVICULTURE.

61. Artificial regeneration operations of all kinds and including the creation of sandalwood propagation centres were conducted over a little over 6,000 acres. Natural regeneration in the timber forests was fair but cannot be relied upon to develop without help. The experiments with artificial regeneration in areas—both evergreen and deciduous—which must be worked under the selection method promise success, particularly gratifying results were obtained in the Tinnevelly evergreen areas.

62. The year was a fairly favourable one, the conditions being reflected in the plantations formed in the year. In Nilambur the results were particularly good and the time during which the art of forming successful plantations in this division appeared to be lost is at an end. In South Coimbatore some initial success was achieved in obtaining a mixture of rosewood and teak. Conditions in the Wynaad are the most difficult, but considerably greater success is being achieved in the more recent plantations and practically everywhere there is evidence of close attention devoted to this important work. The results recorded from Upper Godavari

appear to indicate an exception to this statement as excuses of 'bad seed' and 'failure of the north-east monsoon' are not acceptable in explanation of the moderate success achieved.

63. Some comment should have been made on the results, which it should by this time be able to judge, of the advance regeneration fellings conducted in Upper Godavari, while the Conservator has again refrained from remark upon the regeneration in the Sal Ravine Working Circle in Ganjam. It is noted that an area in this Circle was regenerated by being 'sown from stumps'. The introduction of teak into certain areas in the Gokavaram range is now beyond the stage of experiment and areas suitable for work on an extended scale are being selected.

64. Although considerable progress has been made in the direction of extending the areas over which sandalwood occurs, the very moderate success obtained in a number of divisions indicate ignorance, lack of supervision, or both. The excellent results shown in the past in North Coimbatore and elsewhere could be reproduced nearly everywhere.

65. Useful work, of the nature of research, has been done in North Salem where the District Forest Officer appears to have solved the problem of accelerating the germination of sandal seed.

66. On the whole regeneration by coppice is satisfactory but it is essential, in the areas of low rainfall, that steps be taken to stock the small timber and fuel forests more completely—they do not produce all they should. Some small progress is being made but the necessity for a second Silvicultural Research Officer becomes more and more apparent.

67. One thousand three hundred and fifty-one acres were afforested, shifting sands in Tinnevelly were planted up and casuarina plantations were formed on the coast in the First Circle.

68. The usual thinnings in plantations were carried out and tending appears to have been better attended to. Work of this class has been taken up in the sandal areas, with marked beneficial results, though there is a tendency to open up too much laterally with the result that there is damage by cattle and game.

69. The attention of Conservators is directed to the orders on the subject of climber-cutting in areas not actually under regeneration and of preparing systematic programmes to achieve this.

70. Irrespective of establishment charges Rs. 77,438 was spent on regeneration measures in the year.

Research and experiments.

71. An interesting report by the Forest Research Officer is printed and issued separately. He has, however, omitted mention

of the experimental work being conducted by local officers, though he is kept in touch with them. A separate note on the work done in the Tinnevelly evergreens is, however, published as an addendum to the Research Report. In connexion with this work, an essential to the preparation of a satisfactory working plan, it is interesting to record that a profitable market is forthcoming for a greater number of species than can be so sold from the West Coast evergreen forests.

72. It is probable that the Research Officer attempts more than he is able to do and it is sincerely to be hoped that Government will agree to the proposal for the appointment of a second officer and additional subordinate staff. Much work of value is being done, work which is directly of a remunerative nature, and there can be no doubt that it will be profitable to spend more than the 0·6 per cent of the gross revenues which is all that is at present available for research.

73. The introduction of lac continued; North Coimbatore, Madura and Salem being dealt with with promising results.

74. The Indian Institute of Science, whose work was supplemented by that done in the field by the District Forest Officer in North Salem, continued investigations into spike disease in sandal. Towards the end of the year the Forest Research Institute, Dehra Dun, took up the study of the entomological side.

CHAPTER V.—GENERAL ADMINISTRATION.

(i) ALTERATION IN AREA.

75. About 29 square miles were disreserved, of which 21 square miles in the North and Central Salem divisions were for assignment to the villagers affected by the Mettur project and 5 square miles of ryots' forests in Lower Godavari and Guntur were for assignment to the depressed classes for cultivation. One and a half square miles in Anantapur were disreserved and handed over for cultivation, 141 acres in Upper Godavari and Kurnool South were disreserved as the areas contained tanks and 107 acres in Central Salem for the construction of the Salem-Attur-Vriddhachalam Railway. There was a decrease of about 4 square miles in the Anantapur and South Salem divisions due to recomputation of areas. Seventy-six square miles were added by reservation, principally in the Nilgiris and about 6 square miles by rectification of areas in the Anantapur division. The net result was an increase of 49 square miles in the area of reserved forests which at the end of the year was 18,963 square miles.

76. About 7 square miles were declared reserved lands while the area excluded was 79 square miles; 76 square miles of these

DEVELOPMENT OF SPIKE IN SANDAL FROM GRAFT OF PATCH OF BARK FROM INFECTED TREE.

were notified under section 16 of the Madras Forest Act and the rest represented areas in which reservation proposals were dropped. The area of reserved lands decreased thus to 270 square miles.

77. Three thousand three hundred and eighty-three square miles of reserved forests were under panchayat management during the year as against 3,421 square miles in the previous year. These forests are under the control of the Revenue department. The decrease is accounted for as follows :—

	SQ. MLS.
By disreservation in Lower Godavari and Guntur ...	5
By transfer of Upputeru Block II, Lower Godavari to class I	18
By transfer of Akkurjorai reserved forest in North Coimbatore from class III to class I ...	2
By resumption from panchayats in II and IV Circles	12
By adopting correct area in Chittoor	1
	38

(ii) FOREST SETTLEMENT.

78. Settlement operations were in progress in respect of about 115 square miles out of which 76 square miles were finally settled during the year.

79. The selection of blocks for reservation in the Rampa Agency was continued during the year. Five new blocks were selected and five more which were selected previously were demarcated. The eight blocks referred to in the last year's report were notified under section 4 of the Madras Forest Act after the close of the year.

80. In South Mangalore, the settlement of the three blocks notified under section 4 of the Madras Forest Act is still held in abeyance pending the survey of the villages.

(iii) DEMARCATION.

81. A total length of 254 square miles of boundaries was demarcated (chiefly in Ganjam, Lower and Upper Godavari, Central Salem, Kollegal, Madura and Wynaad divisions) at a cost of Rs. 5,974. The demarcation of 16,477 miles of boundary was kept in repair. At the close of the year, 384 miles of boundary lines remained to be demarcated, chiefly in the Kollegal, North Coimbatore and Madura divisions.

(iv) SURVEY.

82. A Survey of India Party continued the survey on 2 inches to a mile scale in the Lower Godavari division. The total area including overlaps amounted to 394 square miles comprising reserves and blocks selected for reservation in the Rampa Agency. This special survey was subsequently abandoned under the orders of Government as being too costly.

83. The Madras Survey Party continued the survey of the Omalur and Salem taluks and it is nearing completion. The resurvey of Rasipur and Namakkal taluks is progressing. The survey of the Bailnad, Adukkam-Pudukkombai and Perumalmalai reserved lands is expected to be completed by the end of October 1930. The Madras Survey Party continued its work in the South Mangalore division.

(v) ROADS AND COMMUNICATIONS.

84. The only new work of any magnitude undertaken was the construction of a road from Karulai to Nedungayam with two girder bridges at an estimated cost of Rs. 1,01,200. Rupees 49,558 was spent in the year. The work is in the hands of the Forest Engineer.

85. The Conservators, I and II Circles, certify that most of the roads in their Circles are in a satisfactory condition. Similar certificates should have been furnished by other Conservators as well and in respect of *all* roads.

86. The total expenditure on new works was Rs. 88,872 and on repairs Rs. 88,129 as against Rs. 89,259 and Rs. 99,914 respectively incurred in 1928–29.

87. One hundred and one miles of new roads were constructed and 1,974 miles of roads were repaired as against 81 miles and 1,827 miles respectively in the previous year.

88. Comment was made in the last review on the necessity for inspection paths in new plantations, a matter which is not yet receiving sufficient attention. Paths should be laid out before planting is undertaken, they must be graded and they will often conveniently follow the temporary tracks used for extraction purposes.

(vi) BUILDINGS.

89. The construction of the District Forest Officer's quarters at Chittoor, Olavakkot and Vellore was completed by the Forest Engineer. The construction of the Extra Assistant Conservator's quarters at Nilambur was completed by the District Forest Officer. Miscellaneous buildings such as inspection sheds, range offices, subordinates' quarters and rest-houses were also constructed in various divisions.

90. The total expenditure on buildings amounted to Rs. 89,562 for new construction and Rs. 65,436 for repairs or a total of Rs. 1·55 lakhs as against Rs. 1·78 lakhs in the previous year. The greater expenditure in 1928–29 was due to the fact that the greater part of the three residential buildings referred to was completed during that year.

(vii) OTHER WORKS.

91. (i) The total amount spent during the year on the construction and repair of wells amounted to Rs. 12,578 as against Rs. 12,053 in the previous year.

Improvement of water-supply in grazing grounds.

92. (ii) A sum of Rs. 2,930 was spent on the improvement of the water-supply in grazing grounds. Work of this class was undertaken in most of the divisions except those in the Northern Circars and the West Coast divisions where the existing facilities suffice. The improvements consisted in repairing existing tanks and wells and constructing new ones. Members of the public, where they wished to do so, were permitted to repair water-sources and to construct new wells and tanks at their own cost. The permission was used chiefly in Guntur where twenty tanks inside reserves were repaired.

(viii) LIVESTOCK:

(*a*) *Elephants.*

93. The number of elephants on the books at the beginning of the year was 118 valued at Rs. 2,79,334. During the year, 25 elephants were captured (as against 32 in the previous year), one was purchased, and six calves were born. Fourteen elephants were sold for Rs. 14,825, eight including six new captures died, three were handed over to the Raja of Kollengode (in accordance with the terms of the lease of the Tekkadi forests), three escaped, one was released being lame and old and one was destroyed as it had sustained an incurable injury. The number on the books at the end of the year was 120 valued at Rs. 2,89,304.

94. Elephant-capturing operations were conducted as usual in South Coimbatore, the Nilgiris, the Wynaad and the Nilambur divisions. Fourteen animals were captured in South Coimbatore, three in the Nilgiris, seven in the Wynaad and one in Nilambur. The cost of the operations was Rs. 6,556 as against Rs. 10,195 in the previous year. It is disappointing to note that out of fourteen elephants which fell into the pits in South Coimbatore, no fewer than seven were lost in one way or another. The decrease in the number captured in the Sixth Circle is attributed to the Keddah operations in the Mysore State.

95. The substitution, so gradual as to have escaped detection while it was taking place, of rice in the dietary of elephants has been the subject of enquiry and orders have been passed that, except for reasons to be recorded in each case, the use of the cheaper grains is to be reverted to.

(b) Cattle.

96. Fifty-three buffaloes, bullocks and asses valued at Rs. 4,748 were in stock at the beginning of the year. Eight were sold, two died and one ass was lost. One animal was purchased and two ass-foals were born. The balance at the end of the year was 45, valued at Rs. 3,394.

(ix) BREACHES OF THE FOREST ACT.

97. The following table shows the forest offences of all kinds during the year as compared with those of the previous year:—

Cases.	Injury to forests by fire.		Unauthorized fellings.		Unauthorized grazing.		Other offences.		Total.	
	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.
Reserves.										
Cases taken to Court	17	20	2,477	2,691	618	739	186	295	3,298	3,745
Cases compounded	24	24	7,857	7,777	2,686	2,342	665	830	11,232	10,973
Cases undetected	807	691	253	248	24	24	19	15	1,103	978
Total ..	848	735	10,587	10,716	3,328	3,105	870	1,140	15,633	15,696
Unreserves.										
Cases taken to Court	30	29	720	693	28	26	32	53	810	801
Cases compounded	147	136	7,212	5,946	417	88	376	541	8,152	6,711
Cases undetected	35	1	79	129	..	5	5	2	119	137
Total ..	212	166	8,011	6,768	445	119	413	596	9,081	7,649
Total reserves and unreserves.										
Cases taken to Court	47	49	3,197	3,384	646	765	218	348	4,108	4,546
Cases compounded	171	160	15,069	13,723	3,103	2,430	1,041	1,371	19,384	17,684
Cases undetected	842	692	332	377	24	29	24	17	1,222	1,115
Grand total ..	1,060	901	18,598	17,484	3,773	3,224	1,283	1,736	24,714	23,345

98. So far as reserved forests are concerned, there was no appreciable difference in the total number of offences reported. There was a large increase (31 per cent) under other offences in the Second and Sixth Circles; it is attributed to greater vigilance on the part of forest subordinates.

99. Of the 3,950 cases from reserved forests, which were disposed of by the magistrates, in 1,913 cases the accused paid the compounding fees in court at the last moment (after putting Government to the maximum of inconvenience and expense for no reason) and the balance of 2,037 cases proceeded to trial. In 1,916 of these conviction was secured, the percentage of conviction being 94.

100. A sum of Rs. 1,99,238 was realized as compounding fees against Rs. 1,74,381 in the previous year. The average compounding fee for each case was Rs. 12-14-6 and for each accused Rs. 6-12-8 as compared with Rs. 10-12-3 and Rs. 5-6-0 respectively in the previous year.

101. A perusal of the Conservators' reports shows that investigation by District Forest Officers and Range Officers into cases of forest offences was on the whole unsatisfactory though there was some slight improvement. The officers in charge of West and South Kurnool, Vellore, Madura, North Mangalore and Palghat did not investigate a single case, while in West Kurnool even the Range Officers neglected this important work. The case of West Kurnool should be specially examined by the Conservator. Investigation by subordinate officers was unsatisfactory in Vizagapatam, Guntur, Nellore, Kurnool (West and South), Vellore, Central and South Salem and the Nilgiris, while it was good in hardly any division. No details at all are forthcoming from the Fifth Circle. The matter is one requiring far closer attention on the part of controlling officers. The time of Forest Officers is fully occupied but this is not a part of their duties which should be neglected and it is to be hoped that it will not be necessary to refer to the matter again. A certain number of detected cases of sandalwood theft is reported from the Fourth Circle and what is certain is that a far greater number were not detected, or were adjusted. There is no information from the Fifth Circle.

102. It is satisfactory to be able to record that Railway and Police officials in the Fourth Circle continued to render valuable assistance in connexion with sandalwood offences and that they were granted rewards. But the amounts so distributed were pitiably small. Far greater inducements must be held out to subordinates and the public in this important matter and insufficient attention, in general, is paid to the importance of rewarding subordinates who act with courage and honesty, as well as members of the public who co-operate in the detection of important forest cases.

103. The existing sandal transit rules have proved inadequate for the protection of this valuable product. Proposals for their improvement have been submitted for the consideration of Government.

104. Surprise inspections and special secret patrols were organized in the Second and Fourth Circles with satisfactory results, particularly in the former. In the Fifth Circle there was only one such patrol and none are reported from the other Circles. The orders on this subject should be given better attention.

(x) PROTECTION FROM FIRE.

105. Early burning was confined to 785 square miles partially in the Second, Fifth and Sixth Circles. The recorded expenditure was Rs. 4,885 or Rs. 6-4-0 per square mile, a sum for which it is impossible to carry out such work effectively. Seven square miles were subsequently burnt, that is to say, were burnt twice. Early burning should be restricted to areas which can be properly controlled.

106. The area over which special fire-protection was attempted was 4,186 square miles of which 349 square miles (8·3 per cent) were burnt subsequently by forest fires, the figures for the previous year being 4,020 square miles, 367 square miles and 9·1 per cent respectively. The bulk of the damage by fire was, as usual, in the First Circle, the percentage of the area burnt being 18 against 23 in the previous year. The percentage is still high and is attributable to the indifference of the hill tribes to forest protection in the Agency tracts as well as to the policy of granting rewards for protection without due consideration of the effectiveness of that protection.

107. The expenditure on special protection during the year was Rs. 34,346 or Rs. 8 per square mile, the same as in the preceding year.

108. Rewards amounting to Rs. 3,214 were distributed to the Khonds in Ganjam, to the Koyas and Reddis of Upper Godavari and to the settlers in the Peddapur Agency in Lower Godavari for assistance given in fire-protection.

109. In Upper Godavari, in spite of no less than 165,563 acres under special protection being burnt, rewards to the extent of Rs. 2,307 were granted.

110. The practice of closing to grazing areas which have been burnt is not followed to the extent it should be. There is no more effective way of reducing the incidence of fires. There need be no question of fixing the responsibility of the fires upon the

grazing interests—direct proof of such is very rarely possible—it is sufficient that burnt areas require a period of rest. To be fully effective the action taken must be prompt.

(xi) PROTECTION AGAINST INJURIES FROM NATURAL CAUSES.

111. Damage by teak defoliators in the Nilambur division was almost negligible until the end of the year when a severe attack commenced. Investigations into methods of control continue under the supervision of the Forest Research Institute, Dehra Dun. There is also considerable damage by defoliators in the teak plantations of South Coimbatore and Godavari.

112. Pigs continued to cause damage to young teak plantations in one particular and somewhat restricted area in the Wynaad division. This cause is responsible, in fact, for practically complete failure in the case of one plantation.

113. In Lower Godavari, some teak plants were attacked by a borer which has been identified as a larva of *Zenzegera*, but the species has yet to be identified.

114. In the Mudumalai range (the Nilgiris), the teak borer *Phassus malabaricus* does some damage to young plantations and the remedial measures recommended by the Forest Entomologist are said to be difficult to be put in practice.

115. Elephants continue to do considerable damage in the younger teak plantations in South Coimbatore.

116. In the South Mangalore division, the ravages of the borer *Xyleborus morstatti* on young Hopea plants has ceased, perhaps as a result of adopting the remedial measures suggested by the Forest Entomologist in the case of suspected attacks.

117. A black mole cricket attacked the leading shoots of casuarina seedlings in the Kandikuppa plantation and specimens have been sent to Dehra Dun for identification.

118. In South Cuddapah it is reported that Strobilanthes has appeared in felled coupes, retarding regeneration. Action is being taken to combat it. The Forest Research Officer has apparently discovered how to deal with the pest.

119. In Tinnevelly the purchasers of coupes are required to uproot the Strobilanthes, which has a sale value.

120. In the Fourth Circle prickly-pear is being dealt with by the introduction of cochineal insects. This means should be made use of wherever it is intended and possible to replace the prickly-pear by something useful.

121. Spike disease in sandal trees is spreading in the Segur range of the Nilgiris and has made its appearance in the Coonoor

range at Burliar. Research directed by the Indian Institute of Science, Bangalore, augmented by the efforts of local officers continues into the cause of this disease and the Forest Research Institute are now investigating on the entomological side.

(xii) FOREST PANCHAYATS.

122. The working of the reserved forests handed over to panchayat management is reported on by the Board of Revenue in whom their management is vested. All the forests classified as fit for that purpose have been handed over to panchayats, the total area being 3,383 square miles.

123. In Lower Godavari, Upputuru Block II which was originally placed in class III was permanently transferred to class I and resumed by the Forest department, and in North Coimbatore the Akurjorai reserve was also resumed, as it contains a good growth of sandal. Eastern Nallamalai Block V in Kurnool East and Thunukonda reserved forest in Cuddapah South were resumed by the Forest department as the panchayats refused to continue management. In South Salem, an area of 720 acres in Mallur reserve has been resumed by the Forest department since the close of the year.

124. The Forest Village system is now confined to South Kanara and worked fairly satisfactorily in North Mangalore. In South Mangalore, however, the work of the only panchayat in the division was not well reported on and the question of its continuance is under consideration. Efforts were made to form more panchayats in South Kanara, but this will be impossible for so long as the people are able without obligation to indent, free, upon the forest for their principal wants.

(xiii) FOREST COLLEGE.

125. Mr. C. R. F. Williams continued as Principal of the College from 1st April 1929 to 5th January 1930 and Mr. J. C. Wrench was Principal for the rest of the year. Fifteen students passed out in 1930; of these, only one was a Madras Government stipendiary student, six were from the Central Provinces, five from Bombay, one from the Kuruppam estate, one from Jawhar State and one from Hyderabad. No student obtained Honours. Thirteen students secured Higher Standard certificates and two Lower Standard certificates. There were no failures. The examination results were satisfactory.

126. There are no Madras students at the college. The resumption of training in the current year was recommended but was not agreed to by Government.

127. Economy has been effected by a reduction in the number of instructors.

(xiv) VERNACULAR TRAINING SCHOOLS.

128. During the year, Vernacular Training Schools for the instruction of the lower subordinate staff were held in the Second, Fifth and Sixth Circles. In the First Circle, a subsidiary Vernacular Training School was held for three months in the Upper Godavari division.

(xv) FINANCE.

129. The total revenue, excluding the results of Government commercial undertakings, Nilambur and Mount Stuart for the whole year, and Chenat Nair, up to 31st October 1929, amounted to Rs. 58·70, the expenditure being Rs. 44·54 lakhs. The cash surplus was thus Rs. 14·16 lakhs or, adding the net profits on the commercial undertakings, Rs. 15·35 lakhs compared with Rs. 13·86 lakhs in the previous year and Rs. 3·37 lakhs in 1927–28.

130. There was an increase of Rs. 1·27 lakhs in the revenue of sandalwood (more of which was marketed) and the total revenue on produce removed by Government agency increased by Rs. 2·74 lakhs. Apart from sandalwood, there was an increase under timber due to a greater quantity of timber, mainly sleepers, realized on. The revenue from produce removed by consumers and purchasers increased by Rs. 2·33 lakhs.

131. Expenditure on works increased by Rs. 0·94 lakhs principally on account of timber operations on a larger scale. There was a decrease of Rs. 0·39 lakh on pay and allowances due to further retrenchment and to the termination of the contract of the Logging Engineer.

132. The following trading account exhibits the financial position of the department for the year and shows the net profit to be Rs. 22·26 lakhs :—

I. Trading Account.

	Lakhs. Rs.		Lakhs. Rs.
Value of timber, etc., in depots on 31st March 1929	4·09	Value of timber, etc., in depots on 1st April 1930	5·05
Value of tools and plant on 31st March 1929	7·06	Value of tools and plant on 1st April 1930	9·74
Revenue outstandings on 31st March 1929	9·63	Revenue outstandings on 1st April 1930	11·92
Working expenditure of the year (excluding capital expenditure).	41·25	Revenue of the year	58·70
Good debts (advances) on 31st March 1929	0·19	Profits on commercial undertakings (as below)	1·19
Gross profit	24·65	Good debts (advances) on 1st April 1930	0·27
	86·87		86·87

II. Interest.

	Lakhs. Rs.
(1) Capital expenditure up to the end of 1928–29 (excluding commercial concerns)	31·98
Capital expenditure during 1929–30	3·29
	35·27
(2) Interest on capital expenditure during 1929–30 at 5·39 per cent	1·90
III. Depreciation.	
(3) Depreciation on tools and plant at 5 per cent ...	0·49
IV. Profit and Loss Account.	
(4) Gross profit as per table I	24·65
Deduct interest and depreciation (1·90 plus 0·49).	2·39
Net profit ...	22·26

133. The financial results of the year's working of the commercial concerns of Nilambur, Mount Stuart for the whole year and Chenat Nair up to 31st October 1929 were—

	Rs.
Chenat Nair up to 31st October 1929	— 86,085
Nilambur	+1,71,189
Mount Stuart	+ 33,330

Together the three concerns showed a profit of Rs. 1·19 lakhs. It must be mentioned, however, that whereas Chenat Nair is attributed with a loss of Rs. 86,085 up to the time the mill and exploitation was shut down, the timber felled before closure was sold at a profit which is shown in the ordinary accounts.

134. No credit is taken for free grants of grazing and other produce (Rs. 0·57 lakh) or on account of the protection of irrigation sources and the other national interests. General pension charges, the cost of stationery and other small items are omitted from the accounts.

(xvi) GENERAL.

135. As usual the members of jungle tribes continued to be protected and employed by the department and were afforded facilities for free cultivation in reserved forests wherever they so desired and where their labour could be made use of. They are everywhere largely dependent upon the department which treats them fairly and realizes that they can be made useful assets. Their practice of shifting cultivation was utilized in the formation of plantations, though from Upper Godavari it is reported that they are disinclined to undertake the labour of clearing the land.

136. In Nellore the Yanadis were employed on the collection of minor forest produce and for casuarina planting in the Sriharikota range. In addition to money, these people receive rewards in the shape of rice and cloth. The cash they are encouraged to save, by investment in the Post Office Savings Bank, to be withdrawn only in cases of necessity with the permission of the District Forest Officer.

137. The existing organization for the amelioration of the Chenchus and for the provision of congenial work for them continued. Since the close of the year Government have sanctioned the continuance of the existing system for five years from 1st April 1930. A sum of Rs. 26,922 was spent on reclamation work among these people. On the whole they are perhaps showing a gradual tendency to more orderly and settled habits, but their adoption of agricultural pursuits shows little progress, in spite of every assistance. There are three industrial schools and nineteen elementary schools for boys and girls. Chenchu labour was utilized in all departmental operations and in works carried out by departmental contractors and was adequately paid for.

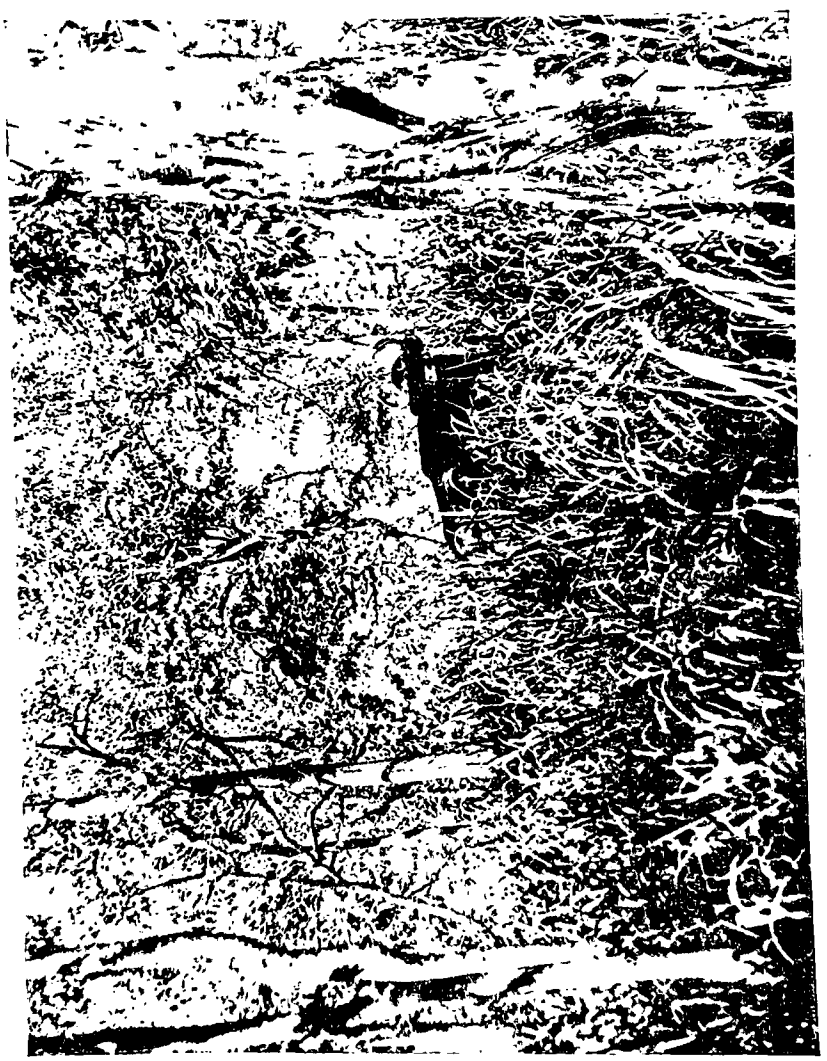
138. The Hill Village system continued in force in the hill villages on the Javadis in Vellore division and in the Chitteris in Central Salem division and refunds of grazing fees for satisfactory protection of reserves were made.

139. In South Salem the co-operation of the Malaiyalis on the Kollimalais and Pachamalais is enlisted under the Fire Reward system as is that of the Koyas and other people in Godavari.

140. The Kudubis in North Mangalore provided labour for fire-protection and the manufacture of cutch. The Kurumbars in the Wynaad, the Nilgiris and Palghat, the Kasubas in the Nilgiris, the Irulars in the Nilgiris and Palghat and the Sholagas of North Coimbatore also supplied labour to the department and were given lands for cultivation. The Mulcers and Kadirs of the Anamalais are provided with labour and other facilities. Provision has been made for accommodating the Kanis of Tinnevelly with land, while a sanctuary has been provided for certain Irulars of Coimbatore who wished to escape from the persons for whom they worked in virtual slavery on the plains. A suggestion that the Forest department should pay the debts alleged to be due to their owners has been coldly received.

141. It is impossible to conclude this review without acknowledging the hard work, often under difficult and discouraging conditions and in unhealthy localities, devotedly carried out by all ranks of the department and without which the satisfactory results of the year's working could not have been achieved.

R. D. RICHMOND,
Chief Conservator of Forests.



APPENDICES.

APPENDIX A.—Comparative statement of numbers and origins of fires that occurred during the calendar year 1929.

APPENDIX A.—Comparative statement of numbers and origins

District.	A. Fires caused by accident or through carelessness in burning fire lines.		B. Fires entering forests by crossing exterior fire lines.		C. Fires beginning inside the							
					Owing to carelessness or accident.							
					By workmen engaged in the forests or by purchasers of forest produce and by hay cutters.		By villagers, travellers, etc., passing through the forests.		By railway engines.		By lightning or by fire balloons.	
	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres	Number of fires.	Area burnt in acres.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
First Circle.												
Ganjam	1	80	11	3,396	..	..	29	10,779	..	..	..	..
Vizagapatam ..	..	..	2	217	1	260	8	587	..	..	..	..
Godavari, Upper.	3	1,950	8	14,401	..	..	14	30,925	..	..	..	..
Do. Lower.	.	..	1	15	1	·1	13	346	..	..	..	..
Guntur	1	60	1	100	2	27	35	2,927	..	..	..	..
Nellore	..	..	6	1,123	2	100	15	1,198	..	..	..	..
Total ..	5	2,090	29	19,252	6	387·1	114	46,762	..	..	..	..
Second Circle.												
Anantapur ..	3	105	11	3,340	1	180	9	3,040	..	..	..	..
Kurnool, East ..	..	..	..	..	..	..	1	38	..	..	..	..
Do. South..	..	..	3	922	..	..	9	6,032	1	5	..	..
Do. West ..	..	..	2	2,200	2	130	24	10,835	1	300	..	..
Cuddapah, North.	..	..	13	4,671	3	180	24	25,324	2	100	..	..
Do South.	..	..	2	250	5	698	17	4,184	..	..	1	3
Total ..	3	105	31	11,383	11	1,188	84	49,453	4	405	1	3
Fourth Circle.												
Chittoor	..	..	..	..	2	380	3	58	1	800	..	..
Vellore	..	..	1	25	1	100	9	696	1	1	..	..
Salem, North ..	..	..	11	4,128	..	..	5	701	..	..	..	..
Do. Central ..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	12	4,153	3	480	17	1,458	2	801	..	..
Fifth Circle.												
Kollegal	4	88	6	855	..	..	8	2,265	..	..	..	..
North Coimbatore.	6	1,117	7	685	..	..	15	3,062	..	..	..	..
South do.	..	..	5	5,615	7	336	5	124	..	..	..	..
Madura	..	..	21	2,275	..	..	..	..	..	..	..	..
Tinnevelly ..	..	..	19	612	..	..	..	..	..	..	2	51
Total .	10	1,205	58	10,042	7	336	28	5,451	..	..	2	51

NOTE.—The return shows fires during the calendar year in areas under special or

DICES.

of fires that occurred during the calendar year 1929.

reserves or fire-traced areas.

By intentional firing.						Total.		Causes unknown.		Total of A, B and C and causes unknown.	
In order to obtain new grass.		In order to turn out game or to reduce cover.		Maliciously fired.							
Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
8	1,587	..	..	..	..	37	12,366	13	6,659	62	22,501
..	..	..	..	..	..	9	847	..	..	11	1,064
..	..	3	7,798	2	903	19	39,626	19	109,587	49	165,564
..	..	..	..	..	..	14	346·1	27	556	42	917
12	2,628	..	..	2	115	51	5,697	..	..	53	5,857
..	..	..	..	3	490	20	1,788	3	257	29	3,168
20	4,215	3	7,798	7	1,508	150	60,670·1	62	117,059	246	199,071
10	1,895	..	..	3	111	23	5,226	27	6,663	64	15,334
1	480	..	..	..	..	2	518	..	..	2	518
1	2,240	..	..	..	..	11	8,277	21	13,805	35	23,004
8	3,665	1	600	..	..	36	15,530	16	7,809	54	25,539
21	20,984	..	..	58	29,151	108	75,739	4	2,225	125	82,635
32	4,959	7	1,712	12	4,589	74	16,145	6	1,259	82	17,654
73	34,223	8	2,312	73	33,851	254	121,435	74	31,761	362	164,684
15	1,241	..	..	..	..	21	2,479	24	4,417	45	6,896
80	3,150	..	..	..	..	91	3,947	23	3,146	115	7,118
..	..	..	..	..	..	5	704	34	25,464	50	30,296
..	..	..	..	..	..	..	..	57	3,838	57	3,838
..	..	..	..	..	..	..	..	34	873	34	873
95	4,391	..	..	..	..	117	7,130	172	37,738	301	49,021
12	2,905	..	..	1	4	21	5,174	27	2,829	58	8,946
13	6,142	..	..	..	..	28	9,204	67	10,759	108	21,765
4	105	..	..	..	..	16	565	6	40	27	6,220
..	..	..	..	..	..	..	..	77	2,468	98	4,743
22	4,042	..	..	14	737	38	4,830	..	..	57	5,442
51	13,194	..	..	15	741	103	19,773	177	16,096	348	47,116

general protection and during the official year the case of areas early burnt.

Appendix A.—Comparative statement of numbers and origins

District.	A. Fires caused by accident or through carelessness in burning fire lines.		B. Fires entering forests by crossing exterior fire lines.		C. Fires beginning inside th							
					Owing to carelessness or accident.							
					By workmen engaged in the forests or by purchasers of forest produce and by hay cutters.		By villagers, travellers, etc., passing through the forests.		By railway engines.		By lightning or by fire balloons.	
	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Sixth Circle.												
Mangalore, North	3	91	16	258	4	122	14	417	..	..	..	..
Mangalore, South	1	25	9	200	..	..	3	117	..	..	..	..
Wynaad ..	2	7	4	955	..	..	..	..	..	..	..	..
Nilambur ..	3	5	4	95	..	..	7	20	..	..	..	..
The Nilgiris ..	3	1,782	4	839	..	..	25	6,342	1	1	..	..
Palghat	..	..	6	960	3	124	4	24	..	..	..	..
Total ..	12	1,910	43	3,307	7	246	53	6,920	1	1	..	..
Parlakimedi Maliahs ..	..	..	..	..	..	..	2	18	..	..	..	..
Grand Total, Presidency ..	30	5,310	173	48,137	34	2,637	298	110,062	7	1,207	3	54

of fires that occurred during the calendar year 1929—*cont.*

reserves or fire-traced areas.

By intentional firing.											
In order to obtain new grass.		In order to turn out game or to reduce cover.		Maliciously fired.		Total of C.		Causes unknown.		Total of A, B and C and causes unknown.	
Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.	Number of fires.	Area burnt in acres.
(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
..	..	..	..	..	..	18	539	2	7	39	895
..	..	..	..	..	..	3	117	38	2,271	51	2,613
2	590	..	..	..	..	2	590	15	9,117	23	10,669
..	..	..	..	..	..	7	20	..	..	14	120
21	123	..	..	..	..	47	6,466	49	6,316	103	15,403
1	130	..	..	..	..	8	278	9	399	23	1,637
24	843	..	..	..	..	85	8,010	113	18,110	253	31,337
..	..	..	..	..	..	2	18	19	765	21	783
263	56,866	11	10,110	95	36,100	711	217,036	617	221,529	1,531	492,012

APPENDIX B.—Comparative statement of impounded cattle during 1929–30.

District.	Number of cattle impounded.		Average for three years ending 1928–29.
	1928–29.	1929–30.	
First Circle.			
Ganjam	1,206	2,009	2,107
Vizagapatam	463	149	563
Godavari, Upper	138	216	590
Do. Lower	1,422	985	1,258
Guntur	3,935	5,991	6,473
Nellore	1,806	1,890	4,609
Total	8,970	11,240	15,600
Second Circle.			
Anantapur	5,333	6,283	8,748
Kurnool, East	1,622	1,994	3,303
Do. South	4,373	9,472	4,352
Do. West	6,414	5,435	8,062
Cuddapah, North	2,443	2,664	2,668
Do. South	3,509	2,636	2,099
Total	23,694	28,484	29,232
Fourth Circle.			
Chittoor	2,282	2,427	2,457
Vellore	* 6,199	4,735	5,571
Salem, North	1,298	1,522	1,514
Do. Central	3,406	1,592	3,014
Do. South	407	1,793	1,204
Total	13,592	12,069	13,760
Fifth Circle.			
Kollegal	2,655	2,004	2,841
Coimbatore, North	2,480	969	3,016
Do. South	267	203	418
Madura	3,761	3,026	4,533
Tinnevelly	1,691	1,187	1,586
Total	10,854	7,389	12,394
Sixth Circle.			
Mangalore, North	150	198	129
Do. South	301	165	323
Wynaad	258	137	160
Nilambur	243	31	429
The Nilgiris	1,002	332	933
Palghat	317	209	423
Total	2,271	1,072	2,397
Parlakimedi Maliahs	106	..	..
Grand Total, Presidency	59,487	60,254	73,383

* Revised figure furnished by the District Forest Officer.

ANNUAL FORM No. 25.

Forest Department, Madras Presidency.

Area of reserved forests and reserved lands in the reserved lands during 1929–30.

ANNUAL

Forest Department,

Area of reserved forests and reserved lands in

Districts.	Area of reserved forests.					
	Area on 1st April 1929.		Added during the year.	Excluded during the year.	Area on 31st March 1930.	
	Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Circle.						
Ganjam	400,122	625	..	..	400,122	625
Vizagapatam	196,547	307	..	..	196,547	307
Upper Godavari ..	531,434	830	..	(*d*) 40	531,394	830
Lower do. ..	363,546	568	..	(*f*) 96·05	363,450	568
Guntur	582,026	909	..	(*g*) 3,240·28	578,786	904
Nellore	525,007	820	..	(*h*) 62·57	524,945	820
Total ..	2,598,682	4,059	..	3,438·90	2,595,244	4,054
Second Circle.						
Anantapur	1,146,999	1,792	(*e*) 3,920	(*a*) 859 (*b*) 2,740 (*c*) 262 (*d*) 2	1,147,056	1,792
Kurnool, East ..	620,743	970	..	..	620,743	970
Do. South ..	417,617	653	..	(*a*) 101	417,516	653
Do. West ..	604,021	944	..	..	604,021	944
Cuddapah, North ..	505,913	790	..	(*a*) 25	505,888	790
Do. South ..	440,978	689	..	..	440,978	689
Total ..	3,736,271	5,838	3,920	3,989	3,736,202	5,838
Fourth Circle.						
Chittoor	503,271	786	..	(*a*) 10	503,261	786
Vellore	714,366	1,116	..	..	714,366	1,116
Salem, North ..	369,671	578	325	(*a*) 310	369,686	578
Do. Central ..	617,361	965	..	(*a*) 12,857	604,504	945
Do. South	263,513	412	(*c*) 6	(*b*) 180	263,339	411
Total ..	2,468,182	3,857	331	13,357	2,455,156	3,836

First Circle—

(*a*) Leased forests.

(*b*) Notified under section 26 of the Madras Forest Act.

(*c*) Notified under section 4 of the Madras Forest Act.

(*d*) Portion of Pedamidisileru Reserved Forest disforested in notification No. 386, dated 5th November 1929, for purposes of irrigation as the portion contains a tank.

(*e*) Repaka extension block notified under section 4, in notification No. 91, dated 20th March 1930.

(*f*) Portion of Murari (Panchayat Reserved Forest) disforested in notification No. 158, dated 1st May 1929, for cultivation for the depressed classes.

(*g*) 3,240·28 acres is the total area disforested in notification Nos. 141, dated 18th April 1929, (Tadapalli Reserved Forest 61·80 acres); 163, dated 7th May 1929 (Mandadi Block I Reserved Forest 617 acres); 164, dated 7th May 1929 (Govindapuram 1,034·96 acres); 165, dated 7th May 1929 (Vemavaram 457·52 acres), 166, dated 7th May 1929 (Palvoy 163 acres); 167, dated 7th May 1929 (Gamalapad 682 acres) and 168, dated 7th May 1929 (Dachapalli 224 acres), for assignment to depressed classes.

(*h*) 1·74 acres from Vendodu Reserved Forest (Panchayat) was disforested in notification No. 200, dated 30th May 1929, for the Madras and Southern Mahratta Railway passes through it and the whole of Kodur tope Reserved Forest (60·83 acres) was disforested in notification No. 269, dated 9th July 1929, for no panchayat could be formed for its management.

FORM No. 25.

Madras Presidency.

the reserved lands during 1929–30.

Area of reserved lands.						Total area of reserved forests and reserved lands in square miles.
Area on 1st April 1929.		Added during the year.	Excluded during the year.	Area on 31st March 1930.		
Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.	
(8)	(9)	(10)	(11)	(12)	(13)	(14)
..	..	..	..	..	..	625
(*a*) 1,313	2	..	..	(*a*) 1,313	2	309
(*b*) 14				(*b*) 14		
..	..	(*e*) 488	..	488	1	831
(*c*) 6,965	11	..	..	(*c*) 6,965	11	579
(*b*) 381	1	..	..	(*b*) 381	1	905
..	..	..	..	..	..	820
8,673	14	488	..	9,161	15	4,069
..	..	..	..	..	..	1,792
..	..	..	..	..	..	970
..	..	..	..	..	..	653
..	..	..	..	..	..	944
..	..	..	..	..	..	790
..	..	..	..	..	..	689
..	..	..	..	..	..	5,838
..	..	..	..	..	..	786
70	..	..	..	70	..	1,116
325	1	..	325	..	..	578
3,790	6	..	..	3,790	6	951
19,302	30	..	..	19,302	30	441
23,487	37	..	325	23,162	36	3,872

Second Circle—

(*a*) Areas disafforested under section 24 of the Forest Act.

(*b*) 2,740 acres were deducted from the area of Kosinipalle Reserved Forest as the original area of the reserve noted on the map was found incorrect (vide G.O. Ms. No. 187, Development, dated 28th January 1930).

(*c*) Decrease in areas of certain reserves due to the adoption of resettlement figures.

(*d*) Two acres were added by error in the total area of Anantapur division last year. These have now been excluded.

(*e*) Increase due to the adoption of resettlement figures (vide item (*c*) above).

Fourth Circle—

(*a*) Area disreserved.

(*b*) Alteration due to correct area furnished by the Director of Survey, Madras.

(*c*) Due to cancellation of a disreservation, and area added to the Vanavasi reserve, notification No. 78, dated 12th March 1929.

Area of reserved forests and reserved lands in

District.	Area of reserved forests.					
	Area on 1st April 1929.		Added during the year.	Excluded during the year.	Area on 31st March 1930.	
	Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Fifth Circle.						
Kollegal	605,829	947	(*a*) 1	..	605,830	947
Coimbatore, North ..	558,100	872	..	..	(*f*) 558,100	872
Do. South ..	250,536	(*b*) 391	..	(*c*) 22 (*c*) 6	(*g*) 250,508	391
Madura	437,835	684	(*a*) 1	(*c*) 249 (*e*) 8	(*h*) 437,579	684
Tinnevelly	267,157	417	..	(*a*) 1	(*j*) 267,156	417
Tanjore	6,468	10	..	..	(*k*) 6,468	10
Total ..	2,125,925	3,321	2	286	2,125,641	3,321
Sixth Circle.						
Mangalore, North ..	229,896	359	..	..	229,896	359
Do. South ..	280,563	438	..	(*a*) 5	280,558	438
Wynaad	168,111	263	..	..	168,111	263
Nilambur	68,822	108	..	..	68,822	108
Palghat	167,898	262	..	..	167,898	262
The Nilgiris	262,021	409	(*b*) 48,054	(*a*) 312	309,763	484
Total ..	1,177,311	1,839	48,054	317	1,225,048	1,914
Parlakimedi Maliahs.	..	..	..	..	..	..
Grand Total, Presidency ..	12,106,371	18,914	52,307	21,387	12,137,291	18,963

(*a*) To round off totals to agree with District figures.
(*b*) Includes 27 square miles of Tekkedi leased forests.
(*c*) Disreservation.
(*e*) Due to adoption of correct areas.
(*f*) Includes 25,702 acres of ryots' forests.
(*g*) Do. 3,470 do.
(*h*) Do. 23,739 do.
(*j*) Do. 6,028 do
(*k*) Do. 2,823 do.

the reserved lands during 1929-30—*cont.*

Area of reserved lands.						Total area of reserved forests and reserved lands in square miles.
Area on 1st April 1929.		Added during the year.	Excluded during the year.	Area on 31st March 1930.		
Acres.	Equivalent in square miles.	Acres.	Acres.	Acres.	Equivalent in square miles.	
(8)	(9)	(10)	(11)	(12)	(13)	(14)
..	..	..	..	..	..	947
..	..	..	..	..	..	872
..	..	..	..	..	..	391
..	..	..	..	..	..	684
..	..	..	..	..	..	417
5,992	9	..	..	..	..	19
5,992	9	..	..	5,992	9	3,330
..	..	..	..	..	..	359
4,013	6	(c) 4,268	(d) 2,321	5,960	9	447
22	..	..	..	22	..	263
11,510	18	..	..	11,510	18	126
..	..	..	..	..	..	262
49,254	77	..	(e) 48,044	1,210	2	491
(f) 2,865	5	..	..	(f) 2,865	5	
67,664	106	4,268	50,365	21,567	34	1,948
113,307	177	..	412	112,895	176	176
219,123	343	4,756	51,102	172,777	270	19,233

Note.—The difference between (*b*) and (*c*) is due to additional area as per actual survey and subdivision of the area disafforested and assigned to the Brooke Bond Tea Estate.

Sixth circle—

(*a*) Disforested under section 24 of the Forest Act.
(*b*) Notified under section 16 of the Forest Act.
(*c*) Notified under section 4 of the Forest Act.
(*d*) Area ordered to be dropped for reservation in Karindala block.
(*e*) Transferred to reserved forest.
(*f*) Todapatta lands.

Appendix to Form No. 25.

Statement showing the areas according to the final reclassification for the year 1929–30.

Name of forest division.	Class I or departmental forests.	Class III or ryots' forest.	Total.
*First Circle.**	SQ. MLS.	SQ. MLS.	SQ. MLS.
Ganjam	625	..	625
Vizagapatam	274	33	307
Godavari Upper	830	...	830
Do. Lower	488	80	568
Guntur	612	292	904
Nellore	411	409	820
Total	3,240	814	4,054
Second Circle.†			
Anantapur	580	1,212	1,792
Kurnool East	899	71	970
Do. South	634	19	653
Do. West	854	90	944
Cuddapah North	752	38	790
Do. South	671	18	689
Total	4,390	1,448	5,838
Fourth Circle.			
Chittoor	(*a*) 577	(*a*) 209	786
Nellore	706	410	1,116
Salem North	568	10	578
Do. Central	715	230	945
Do. South	255	156	411
Total	2,821	1,015	3,836
Fifth Circle.			
Kollegal	947	..	947
Coimbatore North	830	42	
	(*b*) +2	(*b*)— 2	872
Do. South	(*c*) 386	5	
		(*d*) —·03	391
Madura	647	37	684
	(*d*)—·39	(*e*)—·002	
Tinnevelly	407	10	417
Tanjore	6	4	10
Total	3,225	96	3,321
Sixth Circle.			
Mangalore North	359	..	359
Do. South	438	..	438
Wynaad	263	..	263
Nilambur	108	..	108
Palghat	252	10	262
The Nilgiris	484	..	484
Total	1,904	10	1,914
Grand total, Presidency	15,580	3,383	18,963

* *Note.*—In Lower Godavari division, Upputeru Block II which was originally classed as "Ryots' Forest" was transferred to Class I in G.O. Mis. No. 1802, Development, dated 24th October 1929 (Chief Conservator of Forests Proceedings Mis. No. 429, dated 1st November 1929). Hence the increase under class I.

† There are no unclassified reserves in this Circle.

(*a*) Due to correct figures furnished by the District Forest Officer.

(*b*) Due to transfer of Akkurjorai reserve from Class III to Class I.

(*c*) Includes 27 square miles of Tekkadi leased forest.

(*d*) Disreservation.

(*e*) Due to the adoption of correct figures.

ANNUAL FORM No. 26.

Forest Department, Madras Presidency.

Progress made in Forest Settlements during the year 1929–30.

ANNUAL FORM No. 26.

Forest Department, Madras Presidency.

Progress made in Forest Settlements during the year 1929–30.

Name of forest division.	Name of forest.	Area in square miles.			Cost during the year.		Entire cost per square mile of the area finally settled.	Government notification of settlement.	
		Finally settled during the year.	In hand at the commencement of the year.	Taken in hand during the year.	In forest accounts.	In other accounts.		Number.	Date.
	First Circle.								
Godavari Upper.	Repaka Extension	..	..	0·76	..	..	..	91	20th March 1920.
Godavari Lower (Rampa).	Bologond Block	..	6·17	..	..	..	..	..	....
	Bandapalle	..	4·71	..	..	..	..	..	....
	Total ..	..	10·88	0·76	..	..	..	..	
	Second Circle.								
Anantapur ..	....	..	..	..	Nil.	..	..	..	....
Kurnool East ..	....	..	..	..	Nil.	..	..	..	....
Do. South ..	....	..	..	..	Nil.	..	..	..	....
Do. West ..	....	..	..	..	Nil.	..	..	..	....
Cuddapah North.	....	..	..	..	Nil.	..	..	..	....
Do. South.	....	..	..	..	Nil.	..	..	..	....
	Total ..	..	..	..	..	..	..	..	
	Fourth Circle.								
Chittoor ..	Nil.	Nil.	Nil.	..	..	..	..	..	....
Vellore	....	..	..	..	..	..	..	..	....
Salem North ..	Aiyur reserve Extension No. II	0·50	0·50	..	..	..	..	..	No. 9, dated 17th December 1924.
Do. Central ..	Arana and Thirtagiri Blocks *	..	5·92	..	..	..	..	..	No. 363, dated 7th July 1909.
Do. South ..	Adukkam Puducombai	..	7·00	..	..	..	..	..	No. 142, dated 13th May 1925.
	Perumalmalai	..	7·00	..	..	..	..	..	No. 162, dated 4th June 1925.
	Bailnad	..	16·00	..	..	..	..	..	No. 99, dated 8th March 1926.
	Total ..	0·50	36·42	..	..	..	..	..	

	Fifth Circle.								
	Nil.								
	Sixth Circle.								
South Mangalore.	(1) Karindala	..	3·63 †	..	..	..	..	..	..
	(2) Kannanur	..	1·43	..	..	..	..	..	..
	(3) Eleri	..	1·21	..	..	..	..	..	..
	(4) Panathady	..	..	4·40	..	..	..	269	6th August 1929.
	(5) Aletti East Extension	..	..	0·92	..	..	..	270	6th August 1929.
	(6) Panikere	..	..	1·35	..	..	..	271	6th August 1929.
The Nilgiris	(1) Mudumalai and Kumbamkolli	..	74·75	..	..	..	..	343	1st October 1929.
	(2) Madanad addition No. II	..	0·32	..	..	..	..	215	23rd June 1929.
	Total	..	81·34	6·67	..	..	..		
	Grand Total, Presidency	..	108·64	6·67	..	..	..	..	

* It has since been decided by the Chief Conservator to issue section 4 notification afresh as the entire settlement records are not forthcoming. Survey of these blocks is now in progress.

† This has been ordered to be dropped from settlement proceedings. Notification No. nil, dated 20th January 1930, published in the *Fort St. George Gazette*, Part I, dated 28th January 1930.

Note.—There was no Forest Settlement during the year in the second circle.

ANNUAL REPORT FORM No. 27.

Forest Department, Madras Presidency.

Record of demarcation and maintenance of boundaries, 1929-30.

District.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries still to be demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
								On new works.	On repairs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
First Circle.	M. F. CH.	M. F. CH.	MILES.	M. F. CH.	MILES.	MILES.	M. F. CH.	RS.	RS.
Ganjam	82 3 3	(*a*)1,457 1 4	..	1,539 4 7	..	80	1,619 4 7	(*b*) 590	...
Vizagapatam ..	..	(*a*) 459 0 0	..	459 0 0	..	19	478 0 0	(*c*) 33	81
Godavari, Upper.	36 0 0	(*a*) 610 0 0	..	610 0 0	..	151	761 0 0	(*d*) 325 (*e*)	1
Do. Lower.	80 0 0	(*k*)1,013 0 0	..	1,093 0 0	..	81	1,174 0 0	2,033	(*g*) 862
Guntur	..	878 0 0	..	878 0 0	..	201	1,079 0 0	..	54
Nellore	..	(*a*) 461 0 0	..	461 0 0	..	138	599 0 0	(*f*) 97	..
Total ..	198 3 3	4,878 1 4	..	5,040 4 7	..	670	5,710 4 7	3,078	998
Second Circle.									
Anantapur ..	..	(*a*) 666 0 0	34	700 0 0	..	142	842 0 0	..	..
Kurnool, East ..	..	(*b*) 615 0 0	..	615 0 0	..	48	663 0 0	..	210
Do. South..	..	(*b*) 413 0 0	55	468 0 0	..	5	473 0 0	..	12
Do. West ..	..	(*b*) 994 0 0	57	1,051 0 0	..	100	1,151 0 0	..	310
Cuddapah, North	..	(*b*) 455 0 0	309	764 0 0	..	13	777 0 0	..	24
Do. South.	..	(*a*) 332 0 0	28	360 0 0	..	62	422 0 0	..	..
Total ..	..	3,475 0 0	483	3,958 0 0	..	370	4,328 0 0	..	556
Fourth Circle.									
Chittoor ..	..	731 0 0	64	795 0 0	..	36	831 0 0	64	71
Vellore	..	1,670 0 0	..	1,670 0 0	..	39	1,709 0 0	..	88
Salem, North ..	..	737 0 0	43	780 0 0	6	71	857 0 0	..	335
Do. Central ..	9 0 0	1,054 0 0	..	1,063 0 0	..	18	1,081 0 0	256	940
Do. South ..	..	590 0 0	..	590 0 0	..	..	590 0 0	...	31
Total ..	9 0 0	4,782 0 0	107	4,898 0 0	6	164	5,068 0 0	320	1,465

Note for First Circle.

(*a*) Cleared by subordinates free of cost.
(*b*) Rs. 590, shown in column 9 includes an amount of Rs. 14 being cost of preliminary demarcation of Jadadhara block which was subsequently abandoned.
(*c*) Cost of demarcation of Waltair plantation.
(*d*) Cost of preliminary demarcation and survey of the unreserve blocks proposed for reservation in Upper Godavari Division.
(*e*) Cost of preliminary demarcation of Rampa blocks and of planting survey stones between Government and Zamindari plantation.
(*f*) Cost of demarcation with granite pillars over a distance of 1 mile and 7 furlongs in Sathiavedu Reserved Forest.
(*g*) Cost of reclearing boundary lines and repairing cairn of blocks in Rampa.
(*k*) Nine hundred and five miles have been cleared by subordinates free of cost.

Note for Second Circle.

(*a*) Maintained by subordinates free of cost.
(*b*) Partly maintained by subordinates and partly on payment.

Record of demarcation and maintenance of boundaries, 1929–30—*cont.*

District.	Length of boundaries artificially demarcated during the year.	Length of previously existing boundaries repaired.	Length of previously existing boundaries not repaired.	Total length of artificially marked boundaries at the close of the year.	Length of boundaries still to be demarcated at the close of the year.	Length of natural boundaries not requiring artificial marks.	Total length of boundaries at the close of the year.	Expenditure on demarcation during the year.	
								On new work.	On repairs.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Fifth Circle.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	MILES.	RS.	RS.
Kollegal	7	(*a*) 369	..	376	67	152	595	271	..
Coimbatore, North.	..	(*a*) 556	..	556	103	106	765	(*c*) 74	10
Do. South.	..	11	209	220	..	72	293	(*d*) 30	172
Madura	8	(*a*) 851	387	1,246	194	171	1,611	635	..
Tinnevelly ..	..	(*a*) 295	137	432	..	35	467	..	(*b*) 68
Total ..	15	2,082	733	2,830	364	536	3,730	1,010	250
Sixth Circle.									
Mangalore, North.	..	(*e*) 50	(*d*) 1,176	1,226	..	103	1,329	..	(*c*) 286
Do. South.	..	57	(*d*) 1,078	1,135	..	101	1,236	..	(*k*) 232
Wynaad	(*a*) 22	(*b*) 29	1,153	1,204	..	36	1,240	1,371	446
Nilambur	..	(*e*) 101	..	101	14	55	170	..	..
The Nilgiris ..	(*f*) 4	(*g*) 381	1,159	1,544	..	315	(*h*) 1,859	158	880
Palghat	..	(*i*) 144	136	280	..	39	(*j*) 319	37	..
Total ..	26	762	4,702	5,490	14	649	6,153	1,566	1,844
Parlakimedi Maliahs.	6	498	..	505	..	24	529	..	..
Grand Total, Presidency.	254	16,477	6,025	22,721	384	2,413	25,518	5,974	5,113

Note for Fifth Circle.

(*a*) Cleared by the subordinates.
(*b*) Excludes Rs. 403 spent under 'Political' for the clearing of 9 miles 3 furlongs of the Travancore-Tinnevelly boundary line.
(*c*) Value of stone slabs for demarcation.
(*d*) Demarcating the site handed over to Ropeway Company.

Note.—Rupees 403 was spent in clearing the boundary line for 9 miles and 30 chains of the Travancore frontier and expenditure debited to Provincial funds 'Political.'

Note for Sixth Circle.

(*a*) Demarcation of the reserve boundaries where the previous demarcation marks were not clear.
(*b*) Includes 27 miles cleared under 'Political'.
(*c*) Pertains to the clearing of lines under 'Political', Mysore-South Kanara boundary.
(*d*) Usual line clearing by subordinates free of cost.
(*e*) Clearing done in connexion with fire protection work.
(*f*) Increase of 4 miles is due to revision of boundaries necessitated by disafforestation.
(*g*) Includes 243 miles cleared by subordinates free of cost.
(*h*) Includes 31 miles of Mudumalai-Kumbarakolli and Madanad addition No. II Reserved forests finally settled during the year.
(*i*) Clearing done at the time of fire protection work and also by subordinates.
(*j*) Excludes the boundary line of ryot forests under panchayat management.
(*k*) Rs. 227 from Political funds on Mysore-South Kanara boundary and Rs. 5 on numbering of cairns in Naravi reserve.

Annual Form No. 28.

Forest Department, Madras Presidency.

Progress made in working plans during 1929–30.

District.	Areas for which working plans have been completed and approved by the Chief Conservator of Forests.		Areas for which working plans are being compiled or have been compiled but not sanctioned.		Areas for which working plans have still to be taken in hand.	Total forest area as per form 25.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
First Circle.	sq. mls.	sq. mls.	sq. mls.	sq. mls.	sq. mls.	sq. mls.
Reserved forests.						
Ganjam	625	..	..	..		625
Vizagapatam	219	..	..	..	(a) 55	(a) 274
Upper Godavari ..	..	..	..	..	830	830
Lower do. ..	(a) 316	..	..	..	172	(a) 488
Guntur	..	35	(b) 336	..	(a) 241	(a) 612
Nellore	80	..	39	..	292	(a) 411
Total ..	1,240	35	375	..	1,590	3,240
Reserved lands.						
Vizagapatam ..	..	..	..	..	2	..
Lower Godavari ..	..	..	.	..	11	..
Guntur	..	..	..	..	1	..
Total ..	..	..	..	..	14	..
Second Circle.						
Anantapur * ..	..	(a) 580	..	..	..	580
Kurnool, East † ..	..	886	..	..	(b) 13	899
Do. South ..	351	..	..	283	..	634
Do. West ‡ ..	..	..	..	(c) 854	..	854
Cuddapah, North § ..	752	..	..	..	..	752
Do. South ‖ ..	(d) 113	..	9	(e) 549	..	671
Total ..	1,216	1,466	9	1,686	13	4,390

Note for First Circle.

(a) Does not include Ryots Forests.

(b) Working plan over 37 square miles of Krishna mangrove, has been postponed for the present.

Note for Second Circle.

(a) Area comprised in the new working plan for the whole division sanctioned during the year; area shown in column (2) of last year's return in this division is included now in column (3). The decrease of 3 square miles in the total area as compared with the last year's return is due to adopting the resettlement areas as furnished by the Collector.

(b) The whole area of E.N Block V Reserved Forest (13 square miles) was transferred from Class III to Class I.

(c) Areas shown in columns (2), (4) and (5) of last year's return were included in this figure, as one working plan for the whole division is under preparation. The decrease of 2 square miles as compared with the last year's figure is due to the transfer of the whole area of Peapalle Reserved Forest (2 square miles) from Class I to Class III.

(d) One square mile was omitted in column (2) of last year's return by mistake; hence now included.

(e) Area of Thunukonda Reserved Forest (about 2 square miles) was transferred from Class III to Class I; hence increase over last year's figure.

* Working plan sanctioned in Chief Conservator's Proceedings No. 42, Press, dated 28th January 1930.

† Working plan sanctioned in Chief Consr. Proogs. No. 230, Press, dated 4th July 1929.

‡ Working plan for the whole division is under preparation.

§ Working plan sanctioned in Chief Conservator's Proceedings No. 274, Press, dated 1st August 1928.

‖ Working plan for the whole division is under preparation.

Progress made in working plans during 1929-30—*cont.*

District.	Areas for which working plans have been completed and approved by the Chief Conservator of Forests.		Areas for which working plans are being compiled or have been compiled but not sanctioned.		Areas for which working plans have still to be taken in hand.	Total forest area as per form 25.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
FOURTH CIRCLE.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Chittoor	577 (*a*) 1	..	..	..	(*b*) 208	786
Vellore	541 (*a*) 189	..	165	..	(*b*) 221	1,116
Salem, North ..	141 (*a*) 5	..	217	..	210 (*b*) 5	578
Do. Central ..	472 (*a*) 111	..	110 [(*c*) 508]	..	133 (*b*) 119	945
Do. South.. ..	(*c*) 211 (*a*) 38	..	(*c*) 31	(*c*) 13	(*b*) 118	411
Total ..	1,942 (*a*) 344	..	523	13	343 (*b*) 671	3,836
FIFTH CIRCLE.						
Kollegal	(*a*) 947	..	..	..	..	947
Coimbatore, North ..	(*b*) 50 (*a*) 267 (*c*) 212	..	..	..	(*d*) 40 303	872
Do. South ..	(*b*) 65 (*a*) 2	..	..	..	292 (*d*) 5	364
Madura	(*b*) 369	2	15	..	261 (*d*) 37	684
Tinnevelly	(*a*) 304	..	..	..	103 (*d*) 10	417
Tanjore	10	..	..	..	..	10
Leased forests.						
South Coimbatore ..	20	..	..	..	7	27
Total ..	2,246	2	15	..	1,058	3,321

Note for Fourth Circle.

(*a*) Ryots' forests.
(*b*) Ryots' forests—No working plans required.
(*c*) Consolidated working plans for Central and South Salem prepared—Under scrutiny. Five hundred and eight in Central Salem is included in 472 and 110 in columns (2) and (4).

Note for Fifth Circle.

(*a*) Area of temporary scheme sanctioned by Conservator.
(*b*) Area of regular working plans in force.
(*c*) Area of lapsed working plan for extraction of dead sandalwood trees.
(*d*) Area of ryots' forests.

Progress made in working plans during 1929-30—*cont.*

District.	Areas for which working plans have been completed and approved by the Chief Conservator of Forests.		Areas for which working plans are being compiled or have been compiled but not sanctioned.		Areas for which working plans have still to be taken in hand.	Total forest area as per form 25.
	At commencement of the year.	During the year.	At commencement of the year.	Taken in hand during the year.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIXTH CIRCLE.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved forests.						
Mangalore, North ..	(*a*) 38	..	..	..	321	359
Do. South ..	(*b*) 7	..	(*c*) 431	..	..	438
Wynaad	..	158	..	105	..	263
Nilambur	108	..	..	..	..	108
The Nilgiris	(*d*) 159	..	..	..	325	484
Palghat	65	..	24	167	(*e*) 6	262
Total ..	377	158	455	272	652	1,914
Reserved lands.						
Mangalore, South ..	..	..	..	..	(*f*) 9	9
The Nilgiris	..	..	..	..	(*g*) 7	7
Total ..	..	..	..	..	16	16
Leased forests.						
Nilambur	18	..	..	..	..	18
Grand total ..	395	158	455	272	668	1,948
Grand total, Presidency—						
Reserved forests.	7,001	1,661	1,377	1,971	3,649	16,674
Reserved lands ..	..	..	..	..	30	30
Leased forests ..	38	..	..	..	7	45
Total ..	7,039	1,661	1,377	1,971	3,686	16,749

Note for Sixth Circle.

(*a*) Working scheme sanctioned for catechu area and for fuel areas.

(*b*) This is covered by one working plan sanctioned by Board of Revenue, and two schemes sanctioned by Chief Conservator and one sanctioned by Conservator.

(*c*) A regular working plan for the whole division is in progress by the Working Plans Circle The area shown in column (2) is also to be included in it.

(*d*) The increase of the 75 square miles from last year is due to the transfer from reserved lands to reserved forest.

(*e*) Area under Erode panchayat management.

(*f*) Increase is due to further reservation during the year.

(*g*) Toda patta land and Badaga plantations scattered over the district.

ANNUAL FORM No. 29.

Forest Department, Madras Presidency.

Communications and Buildings during 1929-30.

ANNUAL FORM No. 29.

Communications and Buildings during 1929-30.

Description.	Name of division.	At the commencement of the year.			Additions and exclusions during the year.			At the close of the year.			Repairs during the year.		
		Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.
	First Circle.		M. F. CH.	RS.		M. F. CH.	RS.		M. F. CH.	RS.		M. F. CH.	RS.
Roads and bridges including culverts.	Ganjam	23	93 0 1	59,907	1	4 5 5	3,263	24	97 5 6	63,169	14	22 5 9	1,950
	Vizagapatam ..	25	83 0 0	15,563	1	3 0 0	493	26	86 0 0	16,056	9	38 0 0	(*a*) 629
	Godavari Upper.	18	170 1 6	28,863	1	1 1 7	1,630	19	171 3 3	30,494	7	36 4 5	904
	Do. Lower.	21	113 6 8	38,341	..	..	* ..	21	113 6 8	38,341	4	31 6 0	1,041 (*b*)+ 160
	Guntur	31	183 1 0	32,083	2	1 7 0	101	33	185 0 0	32,184	14	36 0 0	1,877
	Nellore	28	174 6 0	12,185	..	..	(*d*) ..	28	174 6 0	13,985	13	32 1 0	(*e*) 1,298
	Total ..	146	817 7 5	1,86,942	5	10 6 2	5,487	151	828 5 7	1,94,229	61	197 1 4	7,859
Buildings, residential and non-residential.	Ganjam	143	..	2,03,715	(*e*) — 18 (*f*) — 4 (*g*) — 4 + 1	..	— 115,754 — 340 988 + 218	118	..	88,827	87	..	7,343 (*b*) + 1,471
	Vizagapatam ..	40	..	9,445	1	..	1,426 (*g*) and (*r*)	41	..	10,871	26	..	933 (*b*) + 221
	Godavari Upper.	78	..	69,181	1 (*h*) — 1	..	(*h*) — 45	78	..	69,136	53	..	2,675
	Do. Lower.	102	..	74,689	+ 1 — 2	..	(*s*) + 50 — 448	101	..	74,291	43	..	2,633 (*b*) + 334
	Guntur	50	..	46,143	+ 2 — 3	..	+ 1,056 — 4,500	49	..	(*m*) 42,699	13	..	711
	Nellore	36	..	49,918	..	..	(*n*) 1,800	36	..	51,718	12	..	950 (*b*) + 1,647
	Total ..	449	..	4,50,091	— 26	..	—1,15,549	423	..	3,37,542	234	..	18,918

Other works.	Ganjam ..	25	..	4,570	1 (*p*) — 1	..	273 (*p*) — 90	25	..	4,753	14	..	441
	Vizagapatam ..	9	..	1,338	..	..	..	9	..	1,838	2	..	7
	Godavari Upper.	18	..	13,784	1	..	445	19	..	4,229	9	..	43
	,, Lower.	13	..	4,005	..	..	..	13	..	4,005	3	..	38
	Guntur ..	9	..	1,264	..	..	..	9	..	1,264	1	..	16
	Nellore ..	18	..	2,792	..	..	..	18	..	2,792	13	..	73
	Total ..	92	..	28,253	1	..	718	93	..	28,881	42	..	618
	Second Circle.												
Roads including bridle-paths and culverts.	Anantapur ..	123	67 2 0	11,050	— 6	19 0 0	— 2,861	117	48 2 0	8,189	6	16 4 0	338
	Kurnool, East ..	54	322 7 0	65,053	..	..	..	54	322 7 0	65,053	12	41 5 0	1,502
	,, South ..	23	117 0 0	46,537	..	..	..	23	117 0 0	46,537	5	40 0 0	814
	,, West ..	9	66 0 0	23,372	+ 1	4 7 0	+ 3,516	10	70 7 0	26,888	4	10 0 0	481
	Cuddapah, North	31	133 6 0	23,726	+ 1	5 4 0	+ 27	32	139 2 0	23,753	7	23 7 0	942
	,, South.	35	186 7 0	45,156	..	..	..	35	186 7 0	45,156	7	38 4 0	693
	Total ..	275	893 6 0	2,14,894	— 4	29 3 0	+ 682	271	885 1 0	2,15,576	41	170 4 0	4,770
Buildings, residential and non-residential.	Anantapur ..	30	..	42,063	+ 1 — 2	..	+ 4,421 — 1,918 (*r*) + 6,445	29	..	51,011	19	..	573
	Kurnool East ..	67	..	76,217	+ 5 — 7	..	5,264 10,425	65	..	68,480	35	..	1,305

* An amount of Rs. 3,502 was not shown in column 8 under Lower Godavari division as the expenditure incurred is in connexion with the part construction of Sudikonda-Mallavaram road sanctioned in No. 51, Capital, 1929-30 and for the part construction of Kachalur-Pedanuthula road—vide C.C.P. Rt. No. 333, dated 11th September 1928.

(*a*) Rupees 5 added to make up Accountant-General's figure.

(*b*) Cost of establishment.

(*c*) Rupees 21 added to make up Accountant-General's figure.

(*d*) Rupees 1,799 relates to expenditure incurred in connexion with the improvements to Varadayapalem-Tanthipandal road and part construction of Bhata-Bogutla cart-track.

(*e*) — 18 represents R.S. mill buildings handed over to Public Works Department.

(*f*) Represents cost of improvements for existing buildings.

(*g*) Represents subsidiary structures attached to main buildings.

(*h*) Cost of forest guard shed at Suravedu written off in Conservator's R.C. No. 35 M., dated 6th September 1929.

(*m*) Correct figure now adopted by the District Forest Officer.

(*n*) Represents cost incurred in connexion with the conversion of a choultry at Ravanappachatram in Sriharikota Range into a rest-house.

(*p*) Old well at Kurcholli rest-house was abandoned and a new one constructed.

(*s*) The difference between this and the figure in form 40 represents outlay on incomplete works.

(*q*) *and* (*r*) An amount of Rs. + 3,524 and an amount of Rs. — 200 were omitted to be shown in column 8 as the former relates to part construction of Range officer's quarters at Bhadrachellam and the latter to recoveries of excess payments in last year.

Communications and Buildings during 1929-30—*cont.*

Description.	Name of division.	At the commencement of the year.			Additions and exclusions during the year.			At the close of the year.			Repairs during the year.		
		Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.
	Second Circle—cont.		M. F.	RS.		M. F.	RS.		M. F.	RS.		M. F.	RS.
Buildings—residential and non-residential—*cont.*	Kurnool, South..	70	..	98,267	+1 −11	..	18,697 5,099	60	..	95,037	41	..	716
	Do. West..	95	..	13,590	+2 −5	..	327 5,520	92	..	1,30,709	26	..	603
	Cuddapah, North.	56	..	78,380	+1 −6	..	1,197 1,088	51	..	78,489	..	..	496
	Do. South.	85	..	89,743	−1 +1	..	−301 +1,900	85	..	91,342	26	..	1,037
	Total ..	403	..	3,98,260	−21	..	41,336	382	..	5,15,068	147	..	4,730
Other works such as wells.	Anantapur ..	..	..	..	..	..	..	..	..	..	6	..	244
	Kurnool, East ..	19	..	1,577	+3 −1	..	−282 523	21	..	7,336	9	..	170
	Do. South ..	11	..	8,461	+1 −1	..	450 224	11	..	8,657	..	..	..
	Do. West ..	10	..	9,040	..	..	72	10	..	9,040	1	..	25
	Cuddapah, North.	81	..	1,318	+1	..	+982	82	..	2,300	7	..	15
	Do. South.	16	..	5,287	−1	..	+2 −150	15	..	5,139	1	..	4
	Total ..	137	..	25,653	+2	..	2,385	139	..	32,472	24	..	458

	Fourth Circle.													
Roads including bridle-paths and culverts.	Chittoor	41	183 7	40,144	1	1 1	1,170	42	185 0	41,314	14	65 1	3,893
	Vellore	33	171 0	1,06,783	2	3 0	1,734	35	174 0	1,08,517	21	136 1	6,989
	North Salem ..	15	100 2	15,552	1	9 7	1,455 (e) 30,081	16	110 1	47,088	11	74 7	4,128
	Central Salem ..	13	69 2	16,069	..	..	..	13	69 2	16,069	8	40 7	1,405
	South Salem ..	34	150 2	32,053	..	0 6	1,666	34	151 0	33,719	12	36 0	2,342
	Total ..	136	674 5	2,10,601	4	14 6	36,106	140	689 3	2,46,707	66	353 0	18,757
Buildings, residential and non-residential.	Direction ..	..	..	..	..	..	309	..	..	..	..	..	..
	Chittoor	(a) 81	..	(a) 66,238	..	..	2,040						1,158
					1	..	21,580	81	..	89,541	16	..	(c) 698
					(b) — 1	..	(b) — 317						(d) 251
	Vellore	101	..	1,34,434	2	..	3,643	98	..	1,35,565	59	..	5,621
					(b) — 5	..	(b) — 2,512						(c) 1,583 (d) 315
	North Salem ..	45	..	49,249	1	..	2,553 (e) 26,914	46	..	78,716	36	..	1,218 (c) 168 (d) 23
	Central Salem ..	(a) 93	..	(a) 74,988	..	..	1,010						1,715
					3	..	4,730	93	..	78,118	41	..	(c) 884
					(b) — 3	..	(b) — 2,610						(d) 93
	South Salem ..	57	..	(f) 50,609	1	..	3,711	53	..	51,517	16	..	1,256 (c) 584
					(b) — 5	..	(b) — 2,803						(d) 117
	Total ..	377	..	3,75,518	8	..	66,490	371	..	4,33,457	168	..	14,885
					(b) — 14		(b) — 8,242						(d) 799
Other works, such as wells.	Chittoor	35	..	9,677	2	..	1,606	37	..	11,283	7	..	48
	Vellore	53	..	2,326	6	..	2,329	59	..	4,655	14	..	243
	North Salem ..	17	..	4,247	1	..	170	18	..	4,417	3	..	42
	Central Salem ..	25	..	2,356	2	..	195	27	..	2,551	4	..	53
	South Salem ..	10	..	2,565	..	..	53 (e) 185	10	..	2,803	4	..	31
	Total ..	140	..	21,171	11	..	4,538	151	..	25,709	32	..	417

Note for Fourth Circle :—

(a) Revised figure furnished by District Forest Officer.
(b) Sold, written off, or transferred to other departments.
(c) Represents cost of establishment.
(d) Represents expenditure under 'Rates and Taxes—Non-voted'.
(e) Represents result of revaluation.
(f) Excludes Rs. 2,565, being the capital cost of *wells* furnished a separate item this year.

Communications and Buildings during 1929–30—*cont.*

Description of work.	Name of division.	At the commencement of the year.			Additions and exclusions during the year.			At the close of the year.			Repairs during the year.		
		Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.
	Fifth Circle.		M. F.	RS.		M. F.	RS.		M. F.	RS.		M. F.	RS.
Roads including bridle-paths.	Kollegal	13	104 7	19,921	..	..	..	13	104 7	19,921	9	72 0	5,390
	North Coimbatore..	13	112 3	82,148	(*a*) 1	0 1	92	14	112 4	82,240	9	63 6	7,497
	South Coimbatore..	13	53 1	2,57,630	3	3 1	12,422	16	56 2	2,70,052	14	47 0	15,797
	Madura ..	42	286 0	1,30,210	2	9 0	4,580	44	295 0	1,34,790	67	321 2	11,997
	Tinnevelly ..	60	191 0	69,911	1	0 4	1,457	61	191 4	71,368	24	89 4	4,250
	Total ..	141	747 3	5,59,820	7	12 6	18,551	148	760 1	5,78,371	123	593 4	44,931
Buildings, residential and non-residential.	Kollegal ..	55	..	69,195	2	..	5,355	57	..	74,550	22	..	1,895
	North Coimbatore..	79	..	77,172	(*b*) *3*	..	*444*	76	..	76,929	35	..	1,839
					(*c*)	..	201						
	South Coimbatore..	88	..	1,45,699	3	..	2,157	89	..	1,45,352	27	..	1,894
					(*d*) *2*	..	*2,504*						
	Madura ..	105	..	1,51,008	2	..	1,295	105	..	1,50,088	..	..	2,639
					(*e*) *2*	..	*2,215*						
	Tinnevelly ..	63	..	99,247	..	..	292	62	..	99,460	50	..	2,921
					1	..	*79*						
	Total	390	..	5,42,321	7	..	9,386	389	..	5,46,379	..	..	(*f*)11,188
					8	..	*5,242*						
Other works, such as wells, etc.	Kollegal	18	..	11,583	..	..	52	18	..	11,635	7	..	72
	North Coimbatore..	18	..	3,934	..	..	49	18	..	3,983	..	..	..
	South Coimbatore..	7	..	3,040	1	..	60	8	..	3,100	3	..	544
	Madura	34	..	7,022	..	..	..	34	..	7,022	..	..	252
	Tinnevelly ..	14	..	1,770	..	..	..	14	..	1,770	4	..	47
	Total ..	91	..	27,349	1	..	161	92	..	27,510	14	..	915

Roads including bridle-path and culverts.	*Sixth circle.*														
	Mangalore, North..	36	74	6	15,449	..	..	..	36	74	6	15,449	5	13	5	771
	Do. South ..	33	100	5	25,877	1	4	3	1,049	34	105	0	26,926	28	80	3	1,083
	Wynaad	59	210	3	72,303	..	..		* 4,738	59	210	3	77,041	57	206	3	12,043
	Nilambur	21	36	2	17,911	..	..		(*g*) ..	21	36	2	17,911	14	21	3	3,076
	The Nilgiris ..	69	113	1	37,747	..	..		..	69	113	1	37,747	69	113	1	2,266
	Palghat	42	206	6	1,60,432	6	28	7	2,596	48	235	5	1,63,028	42	206	6	4,265
	Total ..	260	741	7	3,29,719	7	33	2	8,383	267	775	1	3,38,102	215	641	5	23,504
Buildings, residential and non-residential.	Mangalore, North..	71	..		75,966	3	..		3,678	74	..		79,644	67	..		1,245
	Do. South ..	39	..		69,299	3 (*h*) — 1	..		2,534 (*h*) — 129	41	..		71,704	38	..		1,707
	Wynaad	106	..		1,24,161	10	..		4,490	116	..		1,28,651	94	..		2,410
	Nilambur	43	..		98,090	3 (*i*) — 2	..		14,189 — 1,735	44	..		1,10,544	34	..		3,628
	The Nilgiris ..	96	..		1,45,714	3	..		3,140	99	..		1,48,854	43	..		3,233
	Palghat	57	..		1,42,016	2 (*j*) — 8	..		799 (*k*) — 3,828	51	..		1,38,987	44	..		2,390
	Total ..	412	..		6,55,246	13	..		23,138	425	..		6,78,384	320	..		14,613
Other works, such as well, etc.	Mangalore, North..	27	..		8,349	2	..		557	29	..		8,906	12	..		238
	Do. South ..	15	..		5,080	1	..		58	16	..		5,138	12	..		47
	Wynaad	19	..		7,202	1	..		212	20	..		7,414	11	..		191
	Nilambur	8	..		2,409	..	..		(*l*) 263	8	..		2,672	3	..		163
	The Nilgiris ..	1	..		3,919	..	..		..	1	..		3,919	..	..		..
	Palghat	10	..		3,020	.. (*m*) — 1	..		78 (*m*) — 647	9	..		2,451	4	..		269
	Total ..	80	..		29,979	3	..		521	83	..		30,500	42	..		908

(*a*) A deviation to Kempanaickampalayam-Kadambur road.
(*b*) Out-houses at Sirumugai guard's hut at Kodiyur and guard's hut at Tekkampatti were written off.
(*c*) Additions, such as walls and verandas to existing buildings.
(*d*) Sub-lines at Velayapalayam and store-shed at waterfall.
(*e*) Kalpatti lines written off and Vandararu sub-lines demolished.
(*f*) Includes pay of bungalow watchers.
(*g*) A road with two bridges from Karulai to Nedungayam is under construction during the year and Rs. 38,780 was spent by the Engineering branch.
(*h*) Written off.
(*i*) Dismantled.
(*j*) Tannah sheds excluded.
(*k*) Revised figures.
(*l*) Cost of a well under construction.
(*m*) Relates to well at Olavakkot that collapsed.
* Improvements to existing roads.

Communications and Buildings during 1929-30—*cont.*

Description of work.	Name of division.	At the commencement of the year.			Addisions and exclusions during the year.			At the close of the year.			Repairs during the year.		
		Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.	Number.	Length.	Capital cost.
	Sixth Circle —cont.		MILES.	RS.		M. F. CH.	RS.		M. F. CH.	RS.		M. F. CH.	RS.
Roads including bridle-paths and culverts.	Exploitation division and Forest Engineering division.	..	..	..	..	..	..	..	..	..	..	18 0 0	14,008
	Saw mills and Extraction division.	..	..	..	..	..	2,085	..	..	..	..	..	2,794
	Grand Total, Presidency.	958	38,754	15,01,976	19	100 7 0	71,294	977	3,938 3 0	15,72,985	506	1,973 6 0	1,02,615
Buildings, residential and non-residential.	Saw mills and Extraction division.	..	..	..	..	..	2,955	..	..	..	..	..	742
	Parlakimedi Maliahs.	..	..	..	..	..	84	..	..	..	..	..	115
	Grand Total, Presidency.	2,031	..	24,21,436	42	..	2,54,531	1989	..	25,10,830	869	..	65,191
Other works.	Exploitation division and Forest Engineering division.	..	..	..	..	..	1,048	..	..	..	..	..	..
	Parlakimedi Maliahs	..	..	..	..	..	..	..	..	..	..	..	100
	Grand Total, Presidency.	540	..	1,32,405	18	..	9,281	558	..	1,45,072	154	..	3,416

ANNUAL FORM NO. 30.

Forest Department, Madras.

Return of Breaches of Forest Rules during 1929–30.

ANNUAL FORM No. 30.

Forest Department, Madras.

Return of Breaches of Forest Rules during 1929-30.

District.		Cases pending from 1928-29.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
			Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
									Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIRST CIRCLE.															
By Forest Officers.															
Ganjam	A	8	1	30	4	1	36	44	35	168	1	3	36	171	8
	B	74	3	439	60	17	519	593	..	..	527	1,704	527	1,704	66
	C	..	62	26	..	1	89	89	..	..	..	..	..	..	..
	Total	82	66	495	64	19	644	726	35	168	528	1,707	563	1,875	74
Vizagapatam	A	15	..	27	3	2	32	47	8	10	32	143	40	153	7
	B	14	..	176	8	30	214	228	171	453	8	48	179	501	49
	C	..	..	6	..	..	6	6	..	..	..	..	..	..	..
	Total	29	..	209	11	32	252	281	179	463	40	191	219	654	56
Upper Godavari	A	9	..	1	..	1	2	11	3	4	8	22	11	26	..
	B	4	1	31	3	1	36	40	36	129	..	..	36	129	4
	C	..	49	..	2	1	52	52	..	..	..	..	..	..	..
	Total	13	50	32	5	3	90	103	39	133	8	22	47	155	4
Lower Godavari	A	28	..	74	6	..	80	108	48	54	50	158	98	212	10
	B	64	..	213	64	47	324	388	281	554	14	30	295	584	93
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	92	..	287	70	47	404	496	329	608	64	188	393	796	103

Guntur	A	..	148	..	253	104	8	365	513	143	375	232	617	375	992	138
	B	..	108	..	491	209	20	720	828	..	..	720	1,600	720	1,600	108
	C	..	..	..	18	..	1	19	19	..	..	..	..	..	..	..
	Total	..	256	..	762	313	29	1,104	1,360	143	375	952	2,217	1,095	2,592	246
Nellore	A	..	94	..	104	81	15	200	294	44	72	200	526	244	598	50
	B	..	39	..	129	141	38	308	347	325	788	..	..	325	788	22
	C	..	..	..	4	13	3	20	20	..	..	..	..	..	..	..
	Total	..	133	..	237	235	56	528	661	369	860	200	526	569	1,386	72
Circle	A	..	302	1	489	198	27	715	1,017	281	683	523	1,469	804	2,152	213
	B	..	303	4	1,479	485	153	2,121	2,424	813	1,924	1,269	3,382	2,082	5,306	342
	C	..	..	111	54	15	6	186	186	..	..	..	..	..	..	..
	Total	..	605	116	2,022	698	186	3,022	3,627	1,094	2,607	1,792	4,851	2,086	7,458	555

By Revenue Officers.

Ganjam	A	..	12	..	6	..	..	6	18	18	32	..	..	18	32	..
	B	..	..	..	18	..	..	18	18	..	..	15	15	15	15	3
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	12	..	24	..	..	24	36	18	32	15	15	33	47	3
Vizagapatam.	A	..	..	..	5	5	13	23	23	7	14	14	27	21	41	2
	B	..	7	..	26	..	..	26	33	23	30	..	..	23	30	10
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	7	..	31	5	13	49	56	30	44	14	27	44	71	12
Upper Godavari.	A	..	10	..	5	..	..	5	15	4	9	7	18	12	27	3
	B	..	6	..	44	..	..	44	50	44	152	..	..	44	152	6
	C	..	..	..	7	..	..	7	7	..	..	..	..	..	..	..
	Total	..	16	..	56	..	..	56	72	49	161	7	18	56	179	9
Lower Godavari	A	..	..	..	16	1	..	17	17	..	..	16	20	16	20	1
	B	..	6	..	150	4	39	193	199	111	195	84	115	195	310	4
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	6	..	166	5	39	210	216	111	195	100	135	211	330	5

A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

Return of Breaches of Forest Rules during 1929-30—*cont.*

District.	Cases pending from 1928-29.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
First Circle—*cont.*														
***By Revenue Officers*—cont.**														
Guntur .. A	2	..	39	..	2	41	43	26	59	13	23	39	82	4
Guntur .. B	99	..	413	..	71	484	583	117	351	334	412	451	763	132
Guntur .. C	..	..	45	..	..	45	45	..	..	..	..	..	..	..
Guntur .. Total	101	..	497	..	73	570	671	143	410	347	435	490	845	136
Nellore .. A	8	..	41	14	..	55	63	12	19	48	78	60	97	3
Nellore .. B	17	..	92	8	1	101	118	104	188	..	..	104	188	14
Nellore .. C	..	..	3	5	..	8	8	..	..	..	..	..	..	..
Nellore .. Total	25	..	136	27	1	164	189	116	207	48	78	164	285	17
Circle .. A	32	..	112	20	15	147	179	68	133	98	166	166	299	13
Circle .. B	135	..	743	12	111	866	1,001	399	916	433	542	832	1,458	169
Circle .. C	..	..	55	5	..	60	60	..	..	..	..	..	..	..
Circle .. Total	167	..	910	37	126	1,073	1,240	467	1,049	531	708	998	1,757	182
Circle, Grand Total. A	334	1	601	218	42	862	1,196	349	816	621	1,635	970	2,451	226
Circle, Grand Total. B	438	4	2,222	497	264	2,987	3,425	1,212	2,840	1,702	3,924	2,914	6,764	511
Circle, Grand Total. C	..	111	109	20	6	246	246	..	..	..	..	..	..	..
Circle, Grand Total. Total	772	116	2,932	735	312	4,095	4,867	1,561	3,656	2,323	5,559	3,884	9,215	737

Second Circle.

Reserves under the control of the Forest Department.

Anantapur	A	26	..	146	81	63	290	316	77	186	184	473	261	659	55
	B	66	..	187	79	47	313	379	297	702	23	93	320	795	59
	C	..	63	16	..	..	79	..	..	..	..	..	..	..	..
	Total	92	63	349	160	110	682	695	374	888	207	566	581	1,454	114
Kurnool, East.	A	20	..	42	7	2	51	71	13	18	58	184	71	202	..
	B	23	..	158	58	2	218	241	195	476	18	56	213	532	28
	C	..	1	16	..	..	17	..	..	..	..	..	..	..	..
	Total	43	1	216	65	4	286	312	208	494	76	240	284	734	28
Kurnool, South.	A	25	..	73	27	9	109	134	71	212	53	147	124	359	10
	B	45	..	259	104	97	460	505	431	1,375	13	32	444	1,407	61
	C	..	35	6	4	3	48	..	..	..	..	..	..	..	..
	Total	70	35	338	135	109	617	639	502	1,587	66	179	568	1,766	71
Kurnool, West.	A	12	..	51	10	1	62	74	33	90	26	101	59	191	15
	B	50	..	368	111	9	488	538	435	1,125	3	11	438	1,136	100
	C	..	29	34	..	..	63	..	..	..	..	..	..	..	..
	Total	62	29	453	121	10	613	612	468	1,215	29	112	497	1,327	115
Cuddapah, North.	A	19	...	61	17	4	82	101	40	93	44	129	84	222	17
	B	14	..	184	54	6	244	258	206	440	7	17	213	457	45
	C	..	..	10	..	..	10	..	..	..	..	..	..	..	..
	Total	33	..	255	71	10	336	359	246	533	51	146	297	679	62
Cuddapah, South.	A	13	..	103	46	4	153	166	48	87	101	277	149	364	17
	B	20	..	168	69	9	246	266	242	452	8	28	250	480	16
	C	..	..	26	..	..	26	..	..	..	..	..	..	..	..
	Total	33	..	297	115	13	425	432	290	539	109	305	399	844	33
Total, reserves.	A	115	..	476	188	83	747	862	282	686	466	1,311	748	1,997	114
	B	218	..	1,324	475	170	1,969	2,187	1,806	4,570	72	237	1,878	4,807	309
	C	..	128	108	4	3	243	..	..	..	..	..	..	..	..
Grand total A, B and C reserves.		333	128	1,908	667	256	2,959	3,049	2,088	5,256	538	1,548	2,626	6,804	423

A= Cases taken to Court B= Cases compounded. C = Cases undetected.

Return of Breaches of Forest Rules during 1929-30—*cont.*

District.		Cases pending from 1928-29.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
			Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
									Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
SECOND CIRCLE—*cont.*															
Unreserves.															
Anantapur.	A ..	1	..	120	..	..	120	121	19	28	88	100	107	128	14
	B ..	59	4	383	..	38	425	484	416	637	6	7	422	644	62
	C ..	..	..	4	..	2	6	..	..	..	..	..	..	..	..
	Total ..	60	4	507	..	40	551	605	435	665	94	107	529	772	76
Kurnool, East.	A ..	1	..	16	..	..	16	17	1	1	14	19	15	20	2
	B ..	6	..	75	..	..	75	81	33	53	44	56	77	109	4
	C ..	2	..	16	..	..	16	..	..	..	..	..	..	..	..
	Total ..	9	..	107	..	..	107	98	34	54	58	75	92	129	6
Kurnool, South.	A ..	1	..	7	..	..	7	8	3	3	5	14	8	17	..
	B ..	5	1	26	..	..	27	32	31	35	..	..	31	35	1
	C ..	..	1	9	..	..	10	..	..	..	..	..	..	..	..
	Total ..	6	2	42	..	..	44	40	34	38	5	14	39	52	1
Kurnool, West.	A ..	12	..	17	..	..	17	29	19	36	10	26	29	62	..
	B ..	18	..	95	..	1	96	114	112	129	..	..	112	129	2
	C ..	..	..	6	..	..	6	..	..	..	..	..	..	..	..
	Total ..	30	..	118	..	1	119	143	131	165	10	26	141	191	2

Cuddapah, North.	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	46	..	1	47	47	47	48	..	..	47	48	..
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	46	..	1	47	47	47	48	..	..	47	48	..
Cuddapah, South.	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	..	40	..	..	40	40	40	80	..	..	40	80	..
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	..	40	..	..	40	40	40	80	..	..	40	80	..
Total, unreserves.	A	15	..	160	..	..	160	175	42	68	117	159	159	227	16
	B	88	5	665	..	40	710	798	679	982	50	63	729	1,045	69
	C	2	1	35	..	2	38	..	..	..	..	..	..	..	..
	Total	105	6	860	..	42	908	973	721	1,050	167	222	888	1,272	85
Grand total reserves and unreserves.	A	130	..	636	188	83	907	1,037	324	754	583	1,470	907	2,224	130
	B	306	5	1,989	475	210	2,679	2,985	2,485	5,552	122	300	2,607	5,852	378
	C	2	129	143	4	5	281	..	..	..	..	..	..	..	..
Grand Total		438	134	2,768	667	298	3,867	4,022	2,809	6,306	705	1,770	3,514	8,076	508

Fourth Circle.

Reserves.

Chittoor ..	A	36	..	199	110	14	323	359	111	258	149	337	260	595	99
	B	71	..	253	123	22	398	469	366	627	26	62	392	689	77
	C	..	45	7	..	..	52	..	..	..	..	..	..	..	..
	Total	107	45	459	233	36	773	828	477	885	175	399	652	1,284	176
Vellore ..	A	5	..	21	13	1	35	40	25	56	2	6	27	62	13
	B	274	..	1,031	368	32	1,431	1,705	1,421	2,776	22	77	1,446	2,853	259
	C	..	..	25	1	..	26	..	..	..	..	..	..	..	..
	Total	279	..	1,077	382	33	1,492	1,745	1,449	2,832	24	83	1,473	2,915	272
Salem, North.	A	* 9	..	31	14	6	51	60	50	151	3	6	53	157	7
	B	* 32	..	368	100	11	479	511	443	807	38	89	481	896	30
	C	..	50	..	..	..	50	..	..	..	..	..	..	..	..
	Total	41	50	399	114	17	580	571	493	958	41	95	534	1,053	37

A = Cases taken to court. B = Cases compounded. C = Cases undetected.

* The difference in the opening balance under (A and B) and in the total figure is due to transfer of cases from B to A and transfer of three cases from A to C (cases withdrawn and undetected) as detailed below :—

Two cases from B to A—Salem North.

Return of Breaches of Forest Rules during 1929-30—*cont.*

District.	Cases pending from 1928-29.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FOURTH CIRCLE—*cont.*														
***Reserves*—cont.**														
Salem Central A	*41	..	29	7	3	39	80	63	250	15	50	78	300	2
Salem Central B	*191	..	1,321	164	35	1,520	1,711	1,220	2,882	40	234	1,330	3,116	381
Salem Central C	..	37	25	..	..	62	..	..	..	..	..	..	..	..
Salem Central Total	232	37	1,375	171	38	1,621	1,791	1,353	3,132	55	284	1,408	3,416	383
Salem South. A	*18	..	73	6	57	136	154	140	268	6	56	146	324	8
Salem South. B	*77	1	333	57	37	428	505	445	841	..	..	445	841	60
Salem South. C	..	34	(*a*) 17	..	6	57	..	..	..	..	..	..	..	..
Salem South. Total	* 95	35	423	63	100	621	659	585	1,109	6	56	591	1,165	68
Total A	109	..	353	150	81	584	693	389	983	175	455	564	1,438	129
Total B	645	1	3,306	812	137	4,256	4,901	3,968	7,933	126	462	4,094	8,395	807
Total C	..	166	74	1	6	247	..	..	..	..	..	..	..	..
Grand total	754	167	3,738	963	224	5,087	5,594	4,357	8,916	301	917	4,658	9,883	936
Unreserves.														
Chittoor A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chittoor B	..	..	182	4	3	189	189	189	291	..	..	189	221	..
Chittoor C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Chittoor Total	..	..	182	4	3	189	189	189	291	..	..	189	291	..

Vellore ..	A ..	8	..	3	..	..	3	11	1	2	2	5	3	7	8
	B ..	1,242	1	1,425	56	105	1,587	2,829	2,052	2,913	4	4	2,056	2,917	773
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	1,250	1	1,428	56	105	1,590	2,840	2,053	2,915	6	2	2,059	2,924	781
Salem North.	A ..	*12	..	..	..	..	..	12	10	10	2	4	12	14	..
	B ..	*6	..	225	..	3	228	234	228	282	..	..	228	282	6
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	18	..	225	..	3	228	246	238	292	2	4	240	296	6
Salem Central.	A ..	†4	..	52	..	..	72	76	70	77	4	5	74	82	2
	B ..	†126	..	694	..	1	695	821	651	964	..	..	651	964	170
	C ..	..	..	8	..	..	8	..	..	..	..	..	..	..	..
	Total ..	†130	..	774	..	1	775	897	721	1,041	4	5	725	1,046	172
Salem South.	A ..	†26	4	41	..	5	50	76	23	39	43	65	66	104	10
	B ..	†143	..	614	..	9	623	766	671	853	..	..	671	853	95
	C ..	..	..	12	..	..	19	..	..	..	..	..	..	..	..
	Total ..	†169	4	674	..	14	692	842	694	892	43	65	737	957	105
Total ..	A ..	50	4	116	..	5	125	175	104	128	51	79	155	207	20
	B ..	1,517	1	3,140	60	121	3,322	4,839	3,791	5,303	4	4	3,705	5,307	1,044
	C ..	..	..	27	..	..	27	..	..	..	..	..	..	..	..
	Grand Total ..	†1,567	5	3,283	60	126	3,474	5,014	3,895	5,431	55	83	3,950	5,514	1,064

Fifth Circle.

Reserves.

Kollegal.	A ..	(a) 38	6	83	17	7	113	151	26	98	{ 3	22	140	332	11
	B ..	(a) 20	1	108	60	16	185	205	140	250	11	212			
	C ..	..	58	5	..	..	63	..	..	..	19	53	159	303	46
	Total ..	(b) 58	65	196	77	23	361	356	166	348	133	287	299	635	57

Note.—For Fourth circle—A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

* The difference in the opening balance is due to transfer of a case from B to A.

† The differences in the opening balances are due to correct figures furnished by the Revenue Divisional Officer.

(a) The differences between the closing balance of 1928–29 and the opening balance of 1929–30 are due to transfer of cases from one head to another.

(b) The correct closing balance was 58 only.

*/\ The difference in the opening balance under (A and B) and in the total figure is due to transfer of cases from A to C (cases withdrawn and undetected) as detailed below :—

Fourteen cases from B to A—Salem Central.

Three cases from A to C—Salem South.

Return of Breaches of Forest Rules during 1929–30—*cont.*

District.	Cases pending from 1928–29.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIFTH CIRCLE—*cont.*														
***Reserves*—cont.**														
Coimbatore, North. A	(*a*) 11	..	72	9	4	85	96	71	205	2	8	73	213	23
Coimbatore, North. B	(*a*) 17	3	268	66	5	342	359	292	741	25	83	317	824	42
Coimbatore, North. C	..	..	5	..	..	5	..	..	..	..	..	..	..	..
Coimbatore, North. Total	28	3	345	75	9	432	455	363	946	27	91	390	1,037	65
Coimbatore, South. A	(*a*) 13	..	12	2	3	17	30	27	58	..	..	27	58	3
Coimbatore, South. B	(*a*) 37	..	164	28	24	216	253	211	516	11	30	222	546	31
Coimbatore, South. C	..	6	..	..	..	6	..	..	..	..	..	..	..	..
Coimbatore, South. Total	50	6	176	30	27	239	283	238	574	11	30	249	604	34
Madura A	(*a*) 454	2	977	82	17	1,078	1,532	590	2,032	593	1,836	1,183	3,868	349
Madura B	(*a*) 37	..	265	93	16	374	411	311	675	23	47	334	722	77
Madura C	..	98	..	..	..	98	..	..	..	..	..	..	..	..
Madura Total	491	100	1,242	175	33	1,550	1,943	901	2,707	616	1,883	1,517	4,590	426
Tinnevelly A	67	..	134	47	5	186	253	111	248	104	186	215	434	38
Tinnevelly B	128	..	304	125	5	434	562	478	889	6	28	484	917	78
Tinnevelly C	..	..	1	4	..	5	..	..	..	..	..	..	..	..
Tinnevelly Total	195	..	439	176	10	625	815	589	1,137	110	214	699	1,351	116

Circle Total.	A ..	583	8	1,278	157	36	1,479	2,062	825	2,641	813	2,264	1,638	4,905	424
	B ..	239	4	1,109	372	66	1,551	1,790	1,432	3,071	84	241	1,516	3,312	274
	C ..	..	162	11	4	..	177	..	..	..	..	..	..	..	..
	Total ..	822	174	2,398	533	102	3,207	3,852	2,257	5,712	897	2,505	3,154	8,217	698

Unreserves.

Kollegal..	A ..	..	..	1	..	..	1	1	..	..	1	1	1	1	..
	B ..	10	2	71	..	3	76	86	82	117	..	..	82	117	4
	C ..	..	..	1	..	..	1	..	..	..	..	..	..	..	..
	Total ..	10	2	73	..	3	78	87	82	117	1	1	83	118	4
Coimbatore, North.	A ..	..	..	12	..	..	12	12	12	21	..	..	12	21	..
	B ..	10	2	184	..	13	199	209	193	268	3	3	196	271	13
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	10	2	196	..	13	211	221	205	289	3	3	208	292	13
Coimbatore, South.	A ..	..	..	14	..	..	14	14	7	7	7	9	14	16	..
	B ..	8	..	51	..	16	67	75	68	86	..	..	68	86	7
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total ..	8	..	65	..	16	81	89	75	93	7	9	82	102	7
Madura ..	A ..	57	..	138	5	2	145	202	110	230	45	81	155	311	47
	B ..	185	..	442	1	15	458	643	265	330	254	360	519	690	124
	C ..	..	..	8	..	..	8	..	..	..	..	..	..	..	..
	Total ..	242	..	588	6	17	611	845	375	560	299	441	674	1,001	171
Tinnevelly	A ..	1	11	35	1	24	71	72	54	98	13	14	67	112	5
	B ..	66	2	269	13	192	476	542	493	830	..	..	493	830	49
	C ..	..	..	2	..	..	2	..	..	..	..	..	..	..	..
	Total ..	67	13	306	14	216	549	614	547	928	13	14	560	942	54

A = Cases taken to Court. B = Cases compounded and withdrawn. C = Cases undetected.

Return of Breaches of Forest Rules during 1929-30—*cont.*

District.	Cases pending from 1928-1929.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
FIFTH CIRCLE—*cont.*														
***Unreserves*—cont.**														
Circle total. A	58	11	200	6	26	243	301	183	356	66	105	249	461	52
Circle total. B	279	6	1,017	14	239	1,276	1,555	1,101	1,631	257	363	1,358	1,994	197
Circle total. C	..	..	11	..	..	11	..	..	..	..	..	..	..	..
Total unreserves	337	17	1,228	20	265	1,530	1,856	1,284	1,987	323	468	1,607	2,455	249
,, reserves	822	174	2,398	533	102	3,207	3,852	2,257	5,712	897	2,505	3,154	8,217	698
Grand Total	1,159	191	3,626	553	367	4,737	5,708	3,541	7,699	1,220	2,973	4,761	10,672	947

NOTE.—The difference between the closing balance of 1928-29 and the opening balance of 1929-30 is due to transfer of cases from one head to another.

SIXTH CIRCLE.

Reserved Forest.

Mangalore, North.	A	(e) 1	1	1	..	..	2	3	3	12	..	..	3	12	..
	B	(e) 16	2	126	28	32	188	204	146	244	(d) 7	19	153	263	51
	C	..	36	1	..	..	37	37	..	..	..	..	..	..	..
Total		17	39	128	28	32	227	244	149	256	7	19	156	275	51
Mangalore, South.	A	(e) 25	4	28	11	3	46	71	12	22	(g) 4	13	58	124	13
											(f) 42	89			
	B	30	4	133	33	16	186	216	180	292	(d) 7	15	187	307	29
	C	..	64	..	..	..	64	64	..	..	..	..	..	..	..
Total		55	72	161	44	19	296	351	192	314	53	117	245	431	42

Wynaad.	A	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	B	..	(e) 1	..	.. 7	.. 8	.. 3	.. 18	.. 19	.. 10	.. 19	(d) 2	.. 5	.. 12	.. 24	.. 7
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	1	..	7	8	3	18	19	10	19	2	5	12	24	7
Nilambur.	A	..	(e) 1	..	2	1	..	3	4	.. 2	5	(f) 1	3	4	9	..
	B	..	(e) 1	..	1	8	2	11	12	10	26	1	1	10	26	2
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	2	..	3	9	2	14	16	12	31	2	4	14	35	2
The Nilgiris.	A	..	(e) 55	..	29	28	57	114	169	102	390	9	33	111	423	58
	B	..	(e) 131	6	105	100	238	449	580	466	1,385	20	48	486	1,433	94
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	186	6	134	128	295	563	749	568	1,775	29	81	597	1,856	152
Palghat.	A	..	(e) 14	2	6	1	..	9	23	20	48	..	..	20	48	8
	B	..	(e) 16	2	131	17	3	153	169	105	272	(d) 10	57	128	329	41
	C	..	..	9	..	..	..	9	9	(f) 12	..	(g) 1	..	..	..	..
	Total	..	30	13	137	18	3	171	201	137	320	11	57	148	377	44
Total sixth circle.	A	..	(e) 96	7	66	41	60	174	270	139	477	57	139	196	616	74
	B	..	(e) 195	14	503	194	294	1,005	1,200	929	2,238	47	144	976	2,382	224
	C	..	..	109	1	..	..	110	110	..	..	..	..	..	..	..
	Total	..	291	130	570	235	354	1,289	1,580	1,068	2,715	104	283	1,172	2,998	298

Unreserved.

Mangalore North.	A	..	(e) 18	..	9	..	1	10	28	21	26	1	1	22	27	6
	B	..	(e) 21	..	169	..	5	174	195	166	201	(d) 4	11	170	212	25
	C	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Total	..	39	..	178	..	6	184	223	187	227	5	12	192	239	31

A = Cases taken to Court. B = Cases compounded. C = Cases undetected.

(d) Cases withdrawn.
(e) Differences between the closing balance of 1928-29 and the opening balance of 1929-30 are due to the transfer of cases from one head to another.
(f) Acquitted by Magistrate after payment of compounding fees in court.
(g) Acquitted by Magistrate for want of evidence.

Return of Breaches of Forest Rules during 1929–30—*cont.*

District.	Cases pending from 1928-29.	New cases of the year.					Total cases.	Disposed of during the year.						Cases pending at close of year.
		Injury to forest by fire.	Unauthorized felling or appropriation of wood and minor forest produce.	Grazing without permission or in tracts in which grazing is prohibited.	Other offences.	Total new cases of the year.		Convictions.		Acquittals.		Total.		
								Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	
SIXTH CIRCLE—*cont.*														
***Unreserved*—cont.**														
Mangalore South. A	(*e*) 38	14	22	..	..	36	74	19	26	(*g*) 9	10	49	65	25
Mangalore South. B	(*e*) 8	122	105	..	3	230	238	157	225	(*f*) 21 (*d*) 6	29 6	163	231	75
Mangalore South. C	..	..	1	..	..	1	1	..	..	..	..	..	..	..
Total	46	136	128	..	3	267	313	176	251	36	45	212	296	100
Wynaad. A	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wynaad. B	..	1	12	..	..	13	13	12	12	..	..	12	12	1
Wynaad. C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	1	12	..	..	13	13	12	12	..	..	12	12	1
Palghat. A	6	..	57	..	5	62	68	58	93	8	20	66	113	2
Palghat. B	23	..	57	..	22	79	102	75	111	..	..	75	111	27
Palghat. C	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	29	..	114	..	27	141	170	133	204	8	20	141	224	29
Total unreserves, sixth circle. A	62	14	88	..	6	108	170	98	145	39	60	137	205	33
Total unreserves, sixth circle. B	52	123	343	..	30	496	548	410	549	10	17	420	566	128
Total unreserves, sixth circle. C	..	..	1	..	..	1	1	..	..	..	..	..	..	..
Total	114	137	432	..	36	605	719	508	694	49	77	557	771	161

Total, reserves and unreserves.	A ..	158	21	154	41	66	282	440	237	622	96	199	333	821	107
	B ..	247	137	846	194	324	1,501	1,748	1,339	2,787	57	161	1,396	2,948	352
	C ..	..	109	2	..	..	111	111	..	..	..	..	..	..	..
Total	..	405	267	1,002	235	390	1,894	2,299	1,576	3,409	153	360	1,729	3,769	459
Parlikimedi maliahs unreserves.	A ..	..	...	17	..	1	18	18	..	..	6	30	6	10	12
	B ..	8	1	88	2	..	41	49	39	49	8	64	47	113	2
	C ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	..	8	1	35	2	1	59	67	69	49	14	74	53	123	14
Parlikimedi maliahs reserves.	A ..	6	4	29	5	8	46	52	12	104	20	48	32	152	20
	B ..	..	15	..	..	..	15	..	..	..	..	..	..	..	..
	C ..	20	1	56	4	10	71	91	68	163	13	31	81	194	10
Total	.	26	20	85	9	18	132	143	80	267	33	79	113	346	30
Total, Reserves.	A ..	1,211	20	2,691	739	295	3,745	4,956	1,928	5,574	2,054	5,686	3,982	11,260	974
	B ..	1,620	24	7,777	2,342	830	10,973	12,593	9,016	19,899	1,611	4,497	10,627	24,396	1,966
	C ..	..	691	248	24	15	978	296	..	..	..	..	..	..	..
		2,831	735	10,716	3,105	1,140	15,696	17,845	10,944	25,473	3,665	10,183	14,609	35,656	2,940
Total, Unreserves.	A ..	217	29	693	26	53	801	1,018	495	830	377	579	872	1,409	146
	B ..	2,079	136	5,946	88	541	6,711	8,790	6,419	9,430	762	1,053	7,181	104,83	1,609
	C ..	2	1	129	5	2	137	61	..	..	..	..	..	..	..
		2,298	166	6,768	119	596	7,649	9,869	6,914	10,260	1,139	1,632	8,053	11,892	1,755
Total, Presidency.	A ..														
	B ..	1,428	49	3,384	765	348	4,546	5,924	2,423	6,404	2,431	6,265	4,854	12,669	1,120
	C ..	3,699	160	13,723	2,430	1,371	17,684	21,383	15,435	29,329	2,373	5,550	17,808	34,879	3,575
		2	692	377	29	17	1,115	..	..	..	..	..	..	..	..
Grand Total, Presidency.		5,129	901	17,484	3,224	1,736	23,345	27,357	17,858	35,733	4,804	11,815	22,662	47,648	4,695

Annual Form No. 31.

Forest Department, Madras Presidency.

Area of forest tracts protected from fire during the calendar year 1929.

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	First Circle.	Acs.	Acs.	Acs.	Acs.	Rs.
Ganjam ..	Special protection ..	51,710	54,013	780	53,233	3,719
	General do. ..	193,372	215,995	15,868	200,127	3,357
	Total ..	245,085	270,008	16,648	253,360	7,076
Vizagpatam.	Special protection ..	69,719	79,119	1	79,118	181
	General do. ..	15,489	17,738	..	17,738	56
	Total ..	85,208	96,857	1	96,856	237
Godavari, Upper.	Special protection ..	337,965	530,296	165,563	364,733	4,499
	General do. ..	1,138	1,138	..	1,138	..
	Total ..	339,103	531,434	165,563	365,871	4,499.
Godavari, Lower.	Special protection ..	107,339	116,854	574	116,280	1,623
	General do. ..	109,450	111,763	344	111,419	380
	Total ..	216,789	228,617	918	227,699	2,003
Guntur ..	Special protection ..	..	..	..	..	..
	General do. ..	(a) 330,215	332,736	5,857	326,879	..
	Total ..	330,215	332,736	5,857	326,879	..
Nellore ..	Special protection ..	139,210	139,853	2,616	137,237	408
	General do. ..	122,810	122,989	552	122,437	..
	Total ..	262,020	262,842	3,168	259,674	408
Total, First Circle.	Special protection ..	726,520	920,135	169,534	750,601	10,430
	General do. ..	751,897	802,359	22,621	779,738	3,793
	Grand Total ..	1,478,417	1,722,494	192,155	153,339	14,223
	Second Circle.					
Anantapur.	Special protection by a system of fire lines.	..	15,858	405	15,453	58
	Early burning ..	35,606	24,886	43	24,843	33
	General protection ..	302,780	328,999	14,886	314,113	..
	Total ..	338,386	369,743	15,334	354,409	91
Kurnool, East.	Early burning ..	93,059	74,694	38	74,656	780
	General protection ..	473,208	492,384	480	491,904	..
	Total ..	566,267	567,078	518	566,560	780

(a) The area shown under special protection in the previous year has been transferred to general protection.

Area of forest tracts protected from fire during the calendar year 1929—*cont.*

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	Second Circle—cont.	ACS.	ACS.	ACS.	ACS.	RS.
Kurnool, South.	Early burning ..	94,967	96,060	2,701	93,299	387
	General protection ..	299,694	309,658	20,303	289,355	..
	Total ..	394,661	405,658	23,004	382,654	387
Kurnool, West.	Special protection by a system of fire lines.	3,428	3,888	..	3,888	38
	Early burning.. ..	93,571	8,440	30	8,410	1,693
	General protection ..	438,765	535,676	25,509	516,167	174
	Total ..	535,764	548,004	25,539	522,465	1,905
Cuddapah, North.	Early burning.. ..	30,610	30,968	..	30,968	157
	General protection ..	420,603	454,263	82,635	371,628	103
	Total ..	451,213	485,231	82,635	402,596	260
Cuddapah, South.	Special protection ..	..	41,944	8,164	33,780	133
	Early burning ..	81,287	47,959	1,055	46,904	318
	General protection ..	341,466	339,279	8,435	330,844	393
	Total ..	422,753	429,182	17,654	411,528	844
Total, Second Circle.	Special protection by a system of fire lines.	3,428	61,690	8,569	53,121	229
	Early burning ..	429,100	282,947	3,867	279,080	3,368
	General protection ..	2,276,516	2,460,259	152,248	2,308,011	670
	Grand Total ..	2,709,044	2,804,896	164,684	2,640,212	4,267
	Fourth Circle.					
Chittoor ..	Special protection ..	37,189	38,423	2,679	35,744	719
	General do. ..	322,140	330,707	4,217	326,490	..
	Total ..	359,329	369,130	6,896	362,234	719
Vellore ..	Special protection ..	189,952	192,605	5,233	187,372	1,866
	General do. ..	249,575	253,820	1,885	251,935	..
	Total ..	439,527	446,425	7,118	439,307	1,866
Salem, North.	Special protection ..	61,554	66,448	5,312	61,136	987
	General do. ..	271,634	(*a*) 296,633	24,984	271,649	..
	Total ..	333,188	363,081	30,296	332,785	987

NOTE.—No early burning operations were carried out in the Fourth Circle.

		ACS.
(*a*) Area attempted to be protected as per return for 1928		296,618
Addition during 1929	325	
Exclusion during 1929 being disreserved area	310	
Net addition ..		5
		296,633

Area of forest tracts protected from fire during the calendar year 1929-30—*cont.*

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	Fourth Circle—cont.	ACS.	ACS.	ACS.	ACS	RS.
Salem, Central.	Special protection ..	248,706	(*b*) 249,373	3,078	246,295	2,687
	General do. ..	212,353	(*c*) 207,375	759	206,616	..
	Total ..	461,059	456,748	3,837	452,911	2,687
Salem, South.	Special protection ..	143,701	145,755	784	144,971	270*
	General do. ..	37,331	37,399	89	37,310	..
	Total ..	181,032	183,154	873	182,281	270
Total, Fourth Circle.	Special protection ..	681,102	692,604	17,086	675,518	6,529
	General do. ..	1,093,033	1,125,934	31,934	1,094,000	..
	Grand Total ..	1,774,135	1,818,538	49,020	1,769,518	6,529
	Fifth Circle.					
Kollegal..	Special protection ..	..	32,359	..	32,359	280†
	Early burning ..	..	17,726	..	17,726	..
	General protection ..	577,715	551,804	8,945	542,859	457
	Total ..	577,715	(*a*) 601,889	8,945	592,944	737
North Coimbatore.	Special protection ..	2,832	2,867	..	2,867	183‡
	General do. ..	493,202	511,931	21,765	490,166	964
	Early burning ..	17,920	17,600	..	17,600	250
	Total ..	513,954	532,398	21,765	510,633	1,397
South Coimbatore.	Special protection ..	4,439	4,589	..	4,589	1,174§
	Early burning ..	90	90	..	90	75
	General protection ..	237,908	239,194	6,220	232,974	32
	Total ..	242,437	243,873	6,220	237,653	1,281
Madura ..	Special protection ..	89,118	89,495	450	89,045	2,654 ‖
	Early burning ..	127,964	128,822	817	128,005	570
	General protection ..	189,877	195,523	3,476	192,047	..
	Total ..	406,959	413,840	4,743	409,097	3,224

Note for Fourth Circle—

* The actual amount spent on protecting 144,971 acres noted in column 6 is Rs. 989. But only Rs. 270 was spent within the calendar year 1929. The rest, viz., Rs. 719, was spent after the close of the calendar year.

† 50,085 acres transferred from general protection to special protection.

‡ 10 acres transferred from general protection to special protection.

§ 150 do. do.

‖ 249 acres disreserved.

		ACS
(*b*) Area attempted to be protected as per return for 1928 is		252,348
Area transferred to general protection during 1929		2,975
	Net area ..	249,373
(*c*) Area attempted to be protected as per return for 1928 is		216,118
Additions during 1929—1,139 + 2,975=4,114		4,114
		220,232
Exclusions on account of disreservation		12,857
	Net area ..	207,375

Note for Fifth Circle—

(*a*) Excludes 3,941 acres covered by sholas.

Area of forest tracts protected from fire during the calendar year 1929—*cont.*

District.	Forest tracts.	Area protected during the previous year.	During the year under report.			Cost during the year under report.
			Area attempted to be protected.	Fires.	Actually protected.	
	Fifth Circle—cont.	ACS.	ACS.	ACS.	ACS.	RS.
Tinnevelly.	Special protection ..	..	135,537	2,875	132,662	*343
	General protection ..	237,963	107,400	2,908	104.492	..
	Total ..	237,963	(*b*) 242,937	5,783	237,154	343
Total, Fifth Circle.	Special protection ..	96,389	264,847	3,325	261,522	4,634
	Early burning ..	145,974	164,238	817	165,421	1,352
	General protection ..	1,736,665	1,605,852	43,314	1,562,688	996
	Grand Total ..	1,979,028	(*c*) 2,034,937	47,456	1,987,631	6,982
	Sixth Circle.					
Mangalore, North.	Early burning ..	7,675	7,103	..	7,103	89
	Special protection ..	42,374	68,764	370	68,394	1,839
	General do. ..	179,082	154,028	525	153,503	368
	Total ..	229,131	229,895	895	229,000	2,296
Mangalore, South.	Special protection ..	279,656	280,558	2,613	(*a*) 277,945	2,015
Wynaad..	Early burning ..	47,935	47,935	..	47,935	76
	Special protection. ..	94,935	112,646	10,669	102,997	962
Nilambur ..	Special protection ..	80,265	80,289	120	(*a*) 80,169	3,302
The Nilgiris.	Special protection ..	33,027	80,868	9,883	70,985	2,119
	General do. ..	221,089	228,894	5,520	223,374	..
	Total ..	254,116	309,762	15,403	(*a*) 294,359	2,119
Palghat ..	Special protection ..	116,501	116,772	1,445	115,327	2,287
	General do. ..	47,202	47,380	192	47,188	..
	Total ..	163,703	164,152	1,637	(*a*) 162,515	2,287
Total, Sixth Circle.	Special protection ..	702,368	794,935	25,100	769,835	12,689
	General do. ..	447,373	430,302	6,237	424,065	368
	Total ..	1,149,741	1,225,237	31,337	1,193,900	13,057
Parlakimedi Maliahs.	General protection ..	109,086	112,895	783	112,112	582
Total, Presidency.	Special protection ..	2,154,197	2,679,173	223,614	2,455,559	34,346
	Early burning ..	630,684	502,223	4,684	497,539	4,885
	General protection ..	6,414,570	6,537,601	257,137	6,280,614	6,409
	Total ..	9,199,451	9,718,997	485,435	9,233,712	45,640

Note for Fifth Circle—cont.—

* 135,537 acres transferred to special protection.

(*b*) Excludes 17,811 acres not fire protected.

(*c*) Difference of 249 acres between last year's and this year's figures represents the area disreserved in Perumal series.

Note for Sixth Circle.—

(*a*) No early burning.

FORM No. 32

Forest Department, Madras Presidency.

Area closed and open to grazing during 1929-30.

Districts.	Closed to all animals.		Open to grazing.			
			Of all animals except goats.		Of all animals except browsers (sheep and goats).	
	Whole year.	Part of year.	Whole year.	Part of year.	Whole year.	Part of year.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
FIRST CIRCLE.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved Forests.						
Ganjam	103	..	522	..	..	..
Vizagapatam	11	..	204	..	59	..
Godavari, Upper ..	3	..	827	..	..	..
,, Lower ..	94	..	394	..	..	..
Guntur	61	17	196	..	338	..
Nellore	(a) 225	..	36	150	..	..
Total ..	497	17	2,179	150	397	..
Reserved lands.						
Vizagapatam	..	..	2	..	..	..
Godavari, Lower ..	..	..	11	..	..	..
Guntur	..	..	1	..	..	..
Total ..	..	..	14	..	..	..
Grand Total ..	497	17	2,193	150	397	..
SECOND CIRCLE.						
Anantapur	20	2	556	2	..	..
Kurnool, East	2	..	884	* 13	..	..
,, South ..	24	..	610	..	..	..
,, West	22	..	832	..	..	..
Cuddapah, North ..	31	..	721	..	..	..
,, South ..	67	..	604	..	..	..
Total ..	166	2	4,207	15	..	..
FOURTH CIRCLE.						
Reserved Forests.						
Chittoor	116	..	460	..	..	..
Vellore	40	..	666	..	..	..
Salem, North	8	..	560	..	..	..
Salem, Central	25	..	690	..	..	..
Salem, South	5	..	250	..	..	..
Total ..	194	..	2,626	..	..	..

(a) The increase over last year's figure (195) represents the area of unsold kanchas which are kept closed to grazing. During 1929-30, 29 kanchas had remained unsold as against only 10 in previous year.

* The extent in column 5 refers to the area of E. N. Block V transferred from Panchayat management to the control of the Forest Department on 23rd November 1929.

Area closed and open to grazing during 1929-30—*cont.*

Districts.	Closed to all animals.		Open to grazing.			
			Of all animals except goats		Of all animals except browsers (sheep and goats).	
	Whole year.	Part of year.	Whole year.	Part of year.	Whole year.	Part of year.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
FOURTH CIRCLE—*cont.*	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.	SQ. MLS.
Reserved lands.						
Chittoor	..	..	..	..	..	..
Vellore	..	..	..	..	..	..
Salem, North	..	..	..	..	..	..
Do. Central	..	..	6	..	..	..
Do. South	..	..	30	..	..	..
Total ..	..	..	36	..	..	..
FIFTH CIRCLE.						
Kollegal	..	..	947	..	..	..
North Coimbatore ..	23	..	809	..	..	..
South Coimbatore ..	214	..	172	..	..	..
Madura	127	..	330	..	190	..
Tinnevelly	218	10	170	..	..	9
Total ..	582	10	2,428	..	190	9
SIXTH CIRCLE.						
Reserved Forests.						
Mangalore, North ..	28	..	331	..	..	..
Do. South ..	9	..	429	..	..	..
Wynaad	2	..	(*a*) 261	..	..	..
Nilambur	108	..	..	..	..	..
The Nilgiris	23	..	461	..	..	..
Palghat	143	..	100	..	10	..
Total ..	313	..	1,582	..	10	..
Reserved lands.						
Mangalore South ..	..	..	(*b*) 13	..	..	..
Nilambur	18	..	..	..	..	..
The Nilgiris	..	..	6	..	..	..
Total ..	18	..	19	..	..	..
Grand Total ..	331	..	1,601	..	10	..
Parlakimedi Maliahs ..	2	..	175	..	..	..
Grand total, Presidency, Reserves.	1,752	29	13,022	165	597	9
Reserved lands	20	..	244	..	..	..
Total ..	1,772	29	13,266	165	597	9

(*a*) In last year's return this was shown in column 6. As according to new working plan only goat is prohibited, the figure is now noted in column 4.

(*b*) The area according to Form 25 is only 9 square miles. The difference is due to the fact that an area of 3 163 square miles in extent was removed from the list of reserved lands as per Government notification, dated 20th January 1930 cancelling the previous notification. But all the same the area was under protection and grazing permits had been issued. Hence it has been included here.

Annual Form No. 33.

Forest Department, Madras Presidency.

Return of grazing in the State forests during 1929–30.

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
First Circle.					Rs.					Rs.
Reserved Forests.										
Ganjam	..	..	..	..	..	(a) 6,417	(a) 38,457	(a) 610	..	9,674
										(b) 18
Vizagapatam ..	(b) 237	(b) 3,713	..	..	2,093	(a) 32	(a) 4,112	..	..	783
Godavari, Upper,	..	..	..	..	..	..	..	..	..	..
Do. Lower.	(c) 6,831	(c) 4,224	(c) 85	..	6,725	(a) 382	(a) 7,172	(a) 699	..	(a) 1,553
										(b) 1,200
Guntur	(g) 87	(g) 1,029	..	..	1,203	(b) 8,382	(b) 48,107	(b) 62,647	..	48,097
						(c) 273	(c) 426	..	..	364
						(a) 1,092	(a) 3,383	(a) 6,792	..	1,681
						..	..	..	..	(h) 405
Nellore	..	..	..	..	..	(c) 149	(c) 1,360	(c) 532	..	925
							(k) 47,837			(f) 22,451
Total ..	7,155	8,966	85	..	10,021	16,727	1,50,854	71,280	..	87,131
Unreserved lands.										
Rampa	7,068	5,669	..	..	7,427	..	..	..	..	..
Grand Total ..	14,223	14,635	85	..	17,448	16,727	1,50,854	71,280	..	87,131

Return of grazing in the State forests during 1929–30—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										
	At privileged rates.						By right under settlement.					During pleasure of Government or otherwise than under settlement.					
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Total value of fees at full rates.	Grand total of value at full rates.
					Actual.	Value at full rates.											
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
First Circle —*cont.*					Rs.	Rs.					Rs.					Rs.	Rs.	Rs.
Reserved Forests —cont.																		
Ganjam ..	..	..	..	..	..	..	(*a*) 337	(*a*) 1,753	(*a*) 132	..	467	559	3,776	267	..	942	1,409	11,101
Vizagapatam ..	..	..	..	..	..	..	..	..	..	..	..	..	(*a*) 5,006 (*b*) 342	..	..	1,110	1,110	3,986
Godavari, Upper.	(*e*) 6,615	(*e*)45,753	(*e*) 9,235	..	7,950	11,925	..	..	..	..	..	4,692	42,602	2	..	9,748	9,748	21,673
Do. Lower.	(*d*) 512	(*d*)14,765	..	..	(*d*) 955	2,960	..	..	..	..	..	788	10,145	..	..	2,198	2,198	14,636
Guntur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51,750
Nellore .. .	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	23,356
Total ..	7,127	60,518	9,235	..	8,905	14,885	337	1,753	132	..	467	6,039	61,871	269	..	13,998	14,465	1,26,502
Unreserved lands. —cont.																		
Rampa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7,427
Grand Total ..	7,127	60,518	9,235	..	8,905	14,885	337	1,753	132	..	467	6,039	61,871	269	..	13,998	14,465	1,33,929

Note for First Circle—

(*a*) Six annas per buffaloe, 3 annas per cow or bullock and 1 anna 6 pies per sheep.
(*b*) One rupee per buffaloe, 8 annas per cow or bullock and 4 annas per sheep.
(*c*) Twelve annas per buffaloe, 6 annas per cow or bullock and 3 annas per sheep.
(*d*) One anna per buffaloe or cow.
(*e*) Four annas per buffaloe, 2 annas per cow or bullock and one anna per sheep.
(*f*) Kancha fees realized.
(*g*) One rupee per plough bull.
(*h*) Sale-proceeds of grass.
(*k*) Kancha revenue converted into number of cow units as per instructions in Chief Conservator's Proceedings No. 335, dated 5th December 1924.

Abstract of Animals—

Buffaloes.	Cows and bullocks.	Sheep.	Total.
38,077	226,007	80,600	344,684

Return of grazing in the State forests during 1929-30—*cont.*

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
SECOND CIRCLE.					RS.					RS.
Anantapur ..	..	..	..	..	..	..	(d) 1,126	..	..	1,126
						(c) 1,123	(c) 17,246	(c) 17,085	..	10,513
						(b) 794	(b) 17,184	(b) 29,339	..	16,721
						(a) 1,397	(a) 7,226	(a) 15,510	..	3,340
						..	..	..	..	(e) 404
						..	..	..	..	(f) 21
Kurnool, East.	..	..	..	..	..	(a) 2,692	(a) 19,126	(a) 37,337	..	20,916
						..	(b) 100	(c) 340	..	67
						(d) 651	(d) 8,836	(d) 132	..	10,204
Do. South.	..	..	..	..	..	(a) 3,155	(a) 9,396	(a) 28,237	..	14,124
						(d) 16	(d) 4,010	(d) 550	..	4,317
Do. West.	..	..	..	..	..	(a) 6,452	(a) 28,940	(a) 43,544	..	30,195
						(d) 26	(d) 6,340	(d) 156	(e) 39	6,529
Cuddapah, North.	..	..	..	..	..	(f) 3,264	(f) 11,316	(f) 51,282	..	16,307
						..	(g) 10,812	..	..	10,812
Cuddapah, South.	..	(k) 120	..	..	120	(f) 488	(f) 21,972	(f) 29,600	..	19,592
						..	(g) 5,436	..	..	..
Total ..	..	120	..	..	120	20,058	169,066	253,152	39	1,65,231

Return of grazing in the State forests during 1929-30—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										
	At privileged rates.						By right under settlement.					During pleasure of Government or otherwise than under settlement.					
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fee at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Total value of fees at full rates.	Grand total of value at full rates.
					Actual.	Value at full rates.											
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
SECOND CIRCLE —*cont.*					RS.	RS.										RS.	RS.	RS.
Anantapur ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	32,168
Kurnool, East.	..	..	..	..	..	..	(*d*) 356	(*d*) 894	(*d*) 1,991	..	2,601	..	..	..	..	..	..	33,788
Do. South.	..	..	..	..	..	..	(*a*) 22	(*a*) 30	(*a*) 21	..	35	1	24	..	..	13	13	18,489
Do. West.	..	..	..	..	..	..	(*a*) 255	(*a*) 875	(*a*) 1,198	..	928	..	..	..	..	..	..	37,652
Cuddapah, North.	..	(*h*) 535 (*i*) 138	(*j*) 350	..	120	318	..	..	..	..	..	97	7	..	..	75	75	27,512
Cuddapah, South.	..	..	..	..	..	..	..	(*f*) 568	..	..	213	..	..	..	..	..	..	19,925
Total ..	..	673	350	..	120	318	633	2,367	3,210	..	3,777	98	31	..	..	88	88	1,69,534

Note for Second Circle—

I. Anantapur—
- (*a*) Cows at 3 annas, buffaloes at 6 annas; sheep at 1½ annas.
- (*b*) Cows at 8 annas; buffaloes at Re. 1; sheep at 4 annas.
- (*c*) Cows at 6 annas; buffaloes at 12 annas; sheep at 3 annas.
- (*d*) Cows at Re. 1.
- (*e*) Extra fees for penta grazing.
- (*f*) Kancha fees.

II. 3 Kurnool divisions—
- (*a*) Cows at 8 annas; buffaloes at 12 annas; sheep at 4 annas.
- (*b*) Non-penta calf (cow) at 4 annas.
- (*c*) Lamb at 2 annas.
- (*d*) Cows at Re. 1; buffaloes at Rs. 2; sheep at 8 annas.
- (*e*) Asses (other animals) at Re. 1.

III. North Cuddapah division—
- (*f*) Buffaloes at 12 annas; cows at 6 annas; sheep at 3 annas.
- (*g*) Cows at Re. 1.
- (*h*) Cows at 3 annas.
- (*i*) Cows at 1 anna.
- (*j*) Sheep at ½ anna.

IV. South Cuddapah division—
- (*k*) Cows at Re. 1, enhanced rate sanctioned in G.O. Mis. No. 1270, Development, dated 5th August 1927, as a punitive measures to the villagers of Guvalacheruvu and its hamlets.
- (*f*) Buffaloes at 12 annas; cows at 6 annas; sheep at 3 annas.
- (*g*) Cows at Re. 1.

Abstract of animals permitted to graze on payment—

	No.
Buffaloes	20,058
Cows and bullocks	169,066
Sheep	253,152
Total ..	442,276

Return of grazing in the State forests during 1929–30—*cont.*

District.	Grazing on payment—Number of animals.									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FOURTH CIRCLE.					RS.					RS.
Chittoor	..	..	..	..	..	(*a*) 239	13,280	7,265	..	8,695
						(*b*) 669	39,426	9,846	..	17,133
Vellore	(*c*) 12	2,279	..	..	2,303	(*a*) 635	64,723	31,474	..	40,865
								2,395	..	33,105
Salem, North ..	..	..	..	..	..	(*c*) 1,824	62,277	(*b*) 2,976	..	558
								11,556	..	28,855
						(*f*) 224	45,071			
Do. Central ..	..	8,604	(*c*) 100	..	8,654	(*e*) 361	41,469	1,409	..	21,357
								(*b*) 33,750	..	6,328
						(*f*) 7	20,099	28,351	..	19,287
Do South ..	..	..	..	..	..	(*b*) ..	7,147	4,167	..	3,462
Total ..	12	10,883	100	..	10,957	3,959	293,492	133,189	..	1,79,645

Return of grazing in the State forests during 1929-30—*cont.*

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										Grand total of value at full rates.
	At privileged rates.						By right under settlement.					During pleasure of Government or otherwise than under settlement.					
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Total value of fees at full rates.
					Actual.	Value at full rates.											
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
					Rs.	Rs.												Rs.
FOURTH CIRCLE —*cont.*																		
Chittoor ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25,828
Vellore ..	(*d*) 3,950	27,749	5,558	..	7,205	19,215	..	..	..	..	..	..	..	..	..	..	..	62,498
	(*b*) 13	198	15	..	87	115												
Salem, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	33,663
Do. Central ..	..	10,610	..	..	(*g*) 1,326	5,968	..	..	..	..	..	..	..	..	..	..	..	71,162
Do. South ..	..	..	..	..	..	..	..	(*h*) 235	..	..	132	..	..	..	..	..	..	22,881
Total ..	3,963	38,557	5,573	..	8,618	25,298	..	235	..	..	132	..	..	..	..	..	..	2,16,032

Note for Fourth Circle—

NOTE.—One buffaloe = 2 cows = 4 sheep.

(*a*) Eight annas per cow unit.
(*b*) Six annas per cow unit.
(*c*) One rupee per cow unit.
(*d*) Three annas per cow unit.
(*e*) Twelve annas per buffalo eight annas per cow, four annas per sheep.
(*f*) Nine annas per cow unit.
(*g*) Grazing assessment for Rs. 10,610 cow units in Attur and Harur ranges.
(*h*) Free permits for 235 cows were issued to the Malayalees to graze in Palamalai extension reserved forest in Turaiyur range by right under settlement.

Abstract of animals licensed to graze on payment—Buffaloes—7,934, Cows or bullocks—343,167. Sheep—138,862. Total—489,963.

Return of grazing in the State forests during 1929-30—*cont.*

District.	Grazing on payment—Number of animals,									
	At enhanced or special rates.					At full rates.				
	Buffaloes.	Cows and bullocks.	Sheep.	Other animals	Fees received.	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Fees received.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
FIFTH CIRCLE.										RS.
Kollegal ..	..	..	..	..	..	(*b*) 5,095	80,451	7,460	..	(*f*) 47,186
Coimbatore, North.	..	..	..	..	..	(*b*) 2,916	57,833	17,862	..	(*a*) 36,309
Coimbatore, South.	..	..	..	..	..	(*b*) 372	8,553	305	(*e*) 3	(*g*) 4,755
Madura	..	..	..	..	..	(*d*) 136	35,468	7,637	..	26,964
Tinnevelly ..	..	..	..	..	..	(*b*) 170	8,786	9,262	..	6,879
						(*c*) 151	1,375	2,658	..	563
Total ..	..	..	..	..	..	8,840	1,92,466	45,184	3	1,22,656

(*a*) Excludes Rs. 1,514 realized by sale of fodder grass.

(*b*) Full or nominal rate for Kollegal, North and South Coimbatore and for all ranges in Tinnevelly except Srivaikuntam at Re. 1 per buffaloe, As. 8 per cow or bullock and As. 4 per sheep.

(*c*) Full or nominal rate at As. 6 per buffaloe, As. 3 per cow or bullock and As. 1-6 per sheep for Srivaikuntam range.

(*d*) (1) Part of Kodaikanal range at As. 8 for buffaloes, As. 4 for cows and As. 2 for sheep. Buffaloes 111, cows and bullocks 5,330, sheep 4,129. Fees received Rs. 1,904.

(2) Part of Kodaikanal and Palni, Cumbum, Natham and Ayyalur excluding old Vaiyampatti at Rs. 1-8-0 for buffaloes, As. 12 for cows and As. 6 for sheep. Buffaloes 25, cows and bullocks 26,634, sheep 1,690. Fees received Rs. 20,647.

(3) Ayyalur (old Vaiyampatti) Rs. 2 for buffaloes, Re. 1 for cows, As. 8 for sheep. Cows and bullocks 3,504, sheep 1,818. Fees received Rs. 4,413.

(*e*) Elephants at Rs. 10 each. (*f*) Excludes Rs. 7 realized by sale of fodder grass. (*g*) Excludes Rs. 75 realized by sale of fodder grass.

Return of grazing in the State forests during 1929-30—cont.

District.	Grazing on payment—Number of animals—*cont.*						Grazing free—Number of animals.										Grand total of value at full rates.
	At privileged rates.						By right under settlement					During pleasure of Government or otherwise than under settlement.					Total value of fees at full rates.
	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Sheeps.	Other animals.	Value of fees at full rates.	Buffaloes	Cows and bullocks.	Sheep.	Other animals.	Value of fees at full rates.	
					Actual.	Value at full rates.											
	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
FIFTH CIRCLE —*cont.*						RS.					RS.							RS.
Kollegal ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47,186
Coimbatore, North.	..	(*a*) 54	65	..	11	43	..	..	..	..	..	..	..	..	..	..	..	36,352
Coimbatore, South.	..	..	..	..	..	..	..	30	..	..	15	..	..	..	..	..	..	4,770
Madura ..	..	..	..	..	..	..	673	5,012	378	150	1,674	..	..	..	..	..	..	28,638
Tinnevelly ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7,442
Total ..	..	54	65	..	11	43	673	5,042	378	150	1,689	..	..	..	..	..	..	1,24,388

(*a*) 54 cows at one-fourth rate, i.e., Rs. 0-2-0
Sheep 65 at Rs. 0-1-0

RS.	A.	P.	
6	12	0	Renewal fees.
4	1	0	
10	13	0	

Return of grazing in the State forests during 1929-30—*cont.*

District.	Grazing on payment—Number of animals.										
	At enhanced or special rates.				At full rates.					At privileged rates.	
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Fees received.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals. (Cow calves).	Fees received.	Buffaloes.	Cows and bullocks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
SIXTH CIRCLE.				RS.					RS.		
Reserved forests.											
Mangalore, North	..	..	..	..	1,379	12,375	..	..	5,502	..	..
Mangalore, South.	..	(*a*) 11,719	..	1,465	2,624	17,813	..	..	8,320	..	..
Wynaad ..	..	..	..	..	2,365	3,931	..	..	4,331	..	..
Nilambur ..	(*b*) ..	..	..	..	..	..	..	..	..	..	..
The Nilgiris.	15	263	..	147	7,508	13,419	2,190	29	5,540	..	..
	..	(*c*) 4,650	31,200	152	..	..	..	..	..	..	..
Palghat	22	1,525	30	1,584	52	5,704	2,191	..	3,452	..	..
Total ..	37	18,157	31,230	3,348	13,928	53,242	4,381	29	27,145	..	..
Reserved lands.											
The Nilgiris ..	..	..	..	..	..	..	..	..	..	..	.

(*a*) Includes buffaloes. (*b*) No grazing allowed. (*c*) Slaughter cattle.

	Per each head of		
	Buffalo	Cow or bullocks.	Sheep.
Full rates—	RS. A. P.	RS. A. P.	RS. A. P.
North and South Mangalore	0 10 0	0 6 0	..
Wynaad and Palghat	1 0 0	0 8 0	0 4 0
The Nilgiris	0 6 0	0 3 0	0 1 0

Enhanced rates—

South Mangalore—Cattle admitted to Kulgunda cattle fair, As. 2 each.

The Nilgiris .. Buffalo, Re. 1. Cow, As. 8. Sheep, As. 4.

The Nilgiris slaughter cattle Cow, As. 3 per 50 per day; sheep, As. 1½ per 50 per day.

Palghat .. Buffalo, Rs. 2 each. Cow, Re. 1 each. Sheep, As. 8 each.

Abstract of animals permitted to graze on payment—

Buffaloes ..	13,965
Cows and bullocks.	71,428
Sheep	35,611
	121,004

Return of grazing in the State forests during 1929-30—cont.

District.	Grazing on payment—Number of animals—*cont.*				Grazing free—Number of animals.											
	At privileged rates—*cont.*				By right under settlement.					During pleasure of Government or otherwise than under settlement.					Total value of fees at full rates.	Grand total of value at full rates.
	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks	Goats and sheep.	Other animals.	Value of fees at full rates.		
			Actual.	Value at full rates.												
	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
SIXTH CIRCLE —*cont.*															RS.	RS.
Reserved forests —cont.																
Mangalore, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5,502
Mangalore, South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9,785
Wynaad ..	..	..	..	..	..	..	..	..	..	8	65	..	..	..	41	4,372
Nilambur ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris.	..	..	..	..	..	..	..	..	..	461	212	..	..	..	213	6,052
Palghat	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	..	..	..	..	..	..	..	..	..	..	88	..	..	..	44	5,080
Total ..	..	..	..	..	..	..	..	..	..	469	365	..	..	..	298	30,791
Reserved lands —cont.																
The Nilgiris ..	..	..	..	..	..	..	..	..	..	539	..	..	..	..	202	202

Return of grazing in the State forest of Parlakimedi Maliahs during 1929-30.

District.	Grazing on payment—Number of animals.											
	At enhanced or special rates.					At full rates.					At privileged rates.	
	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.	Sheep.	Other animals.	Fees received.	Buffaloes.	Cows and bullocks.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
										Rs. A. P.		
Parlakimedi Malihas ..	..	..	..	..	..	2,258	2,780	350	..	1,400 13 0	..	..
Total, Departmental areas ..	14,272	43,795	31,415	..	31,873	65,770	861,900	507,536	71	583,029	11,090	99,802
Total, Panchayat areas	1,562	46,815	29,035	1	42,167	18,959	274,575	527,723	16	280,123	7,860	15,785
Grand Total, Presidency.	15,834	90,610	60,450	1	74,040	84,729	1,136,475	1,035,259	87	863,152	18,950	115,587.

Return of grazing in the State forest of Parlakimedi Maliahs during 1929-30—*cont.*

District.	Grazing on payment—Number of animals—*cont.*				Grazing free—Number of animals.											
	At privileged rates—*cont.*				By right under settlement.					During pleasure of Government or otherwise than under settlement.					Total value of fees at full rates.	Grand total of value at full rates.
	Goats and sheep.	Other animals.	Fees received.		Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.	Buffaloes.	Cows and bullocks.	Goats and sheep.	Other animals.	Value of fees at full rates.		
			Actual.	Value at full rates.												
	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
			RS.	RS.					RS.					RS.	RS.	RS. A. P.
Parlakimedi Maliahs.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1,401 0 0
Total, Departmental areas ..	15,223	..	17,654	40,544	1,643	9,397	3,720	150	6,665	7,145	62,267	269	..	14,086	15,053	6,76,277 0 0
Total, Panchayat areas.	69,190	1	19,053	29,448	12	3,016	701	..	1,570	621	232	..	..	..	..	3,41,344 0 0
Grand Total, Presidency.	84,413	1	36,707	69,992	1,655	12,413	4,421	150	7,635	7,766	62,499	269	..	14,086	15,053	1,017,621 0 0

1. Genuine inhabitants of the Agency except professional graziers are permitted to graze cattle free of charge and without licence on permit.
2. There are no forests managed by panchayat in this Division.

	A.	P.	
Buffaloes at	6	0	per head.
Cows at	3	0	,,
Sheep at	1	6	,,

Note—Grazing on payment at enhanced or special rates is nil.

Abstract of animals permitted to graze on payment in reserved forests and reserved lands.

Circle.	Buffaloes.	Bullocks and cows.	Sheep.	Other animals.	Total.
First Circle ..	38,077	226,007	80,600	..	344,684
Second ,, ..	20,058	169,056	253,152	..	442,276
Fourth ,, ..	7,934	343,167	138,862	..	489,963
Fifth ,, ..	8,840	192,466	45,184	..	246,490
Sixth ,, ..	13,965	71,428	35,611	..	121,004
Parlakimedi Maliahs.	2,258	2,780	350	..	5,388
Total, Departmental Forests	91,132	1,004,914	553,759	..	1,649,805
Panchayat areas ..	28,381	337,175	625,948	..	991,504
Grand total ..	119,513	1,342,089	1,179,707	..	2,641,309

ANNUAL FORM No. 34-A.

Forest Department, Madras Presidency.

Progress in afforestation and regeneration under working plans or schemes during the year 1929-30.

ANNUAL

Forest Department,

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year (1st April 1929). (6)
FIRST CIRCLE.		YEARS	ACS.		ACS.
Ganjam	Plain Sal Timber Working Circle.	1919-20 to 1933-34	2,506	Clear felling and natural regeneration.	..
	Ravine Working Circle.	1920-21 to 1939-40	2,605	Do.	..
Vizagapatam	Sal Working Circle.	1927-28 to 1961-62	(*a*) 681	Do.	..
Godavari Lower	Casuarina Plantation, Kandikuppa Reserve.	1924-25 to 1933-34	682	Planting up with seedlings, 7'×7'.	64
Nellore	Casuarina Working Circle, Sreeharikota Range.	1929-30 to 1938-39	500	Do.	..
	Total ..	..	6,974	..	64
SECOND CIRCLE.					
SANDALWOOD PROPAGATION CENTRES.					
Anantapur division.					
Bukkapatnam Range.					
1. Amagondapalem Compartments Nos. I and II.	....	1928-29 to 1937-38 (ten years).	10	Dibbling of seeds in one acre plots.	2
2. Gopidevarapalli reserve forest.	....	Do.	10	Do.	1
3. Dokkalakonda reserve forest of Ganginapalli beat.	....	Do.	10	Do.	..
4. Dokkalakonda reserve forest of Kondakomerla beat.	....	Do.	10	Do.	1
5. Kothakota reserve forest of Bukkapatnam beat.	....	Do.	10	Do.	1
6. Kothakota reserve forest of Narasampalli beat.	....	Do.	10	Do.	1
7. Kothakota reserve forest of Erlampalli beat.	....	Do.	10	Do.	..

(*a*) Correct area.

FORM No. 34-A.

Madras Presidency.

plans or schemes during the year 1929-30.

Area on which regeneration commenced during the year, 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year, 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During year, 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
171	1,752	171	1,923	..	687	1,338	7,265	10,581	..	..
113	481	113	594	..	455	321	4,240	3,377	..	..
76	18	76	94	..	12	76	22	76	..	..
64	270·8	64	334·8	64	1,874	721	9,053	1,000	2,776	2,981
52	..	52	52	52	285	592	285	592	..	..
476	2,521·8	476	2,997·8	116	3,313	3,048	20,865	15,626	2,776	2,981
2	45	..	45	4	..	..	252	282	..	..
1	..	..	..	2	..	..	..	..	..	..
2	..	..	..	2	..	..	..	..	..	..
1	..	..	..	2	..	..	..	..	..	..
1	..	..	..	2	..	..	6	..	..	..
1	..	..	..	2						
2	..	..	..	2	..	..	..	..	..	..

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year (1st April 1929). (6)
SECOND CIRCLE—*cont.*		YEARS.	ACS.		ACS.
SANDALWOOD PROPAGATION CENTRES—*cont.*					
Anantapur Division—cont.					
Bukkapatnam Range—*cont.*					
8. Thumalamala reserve forest of Nallamada beat.	..	1928-29 to 1937-38 (ten years).	10	Dibbling of seeds in one acre plots.	1
9. Malappakonda reserve forest of Mylasamudram beat.	..	Do.	10	Do.	1
10. Nyalakota reserve forest of Ganganapalle beat.	..	Do.	10	Do.	1
11. Nayalakota reserve forest of Dorisamala beat.	..	Do.	10	Do.	..
12. Janniavulapalle reserve forest of Ganganapalle beat.	..	Do.	10	Do.	1
Ganganapalle Range.					
13. Ganganapalle reserve forest.	..	Do.	40	Do.	4
14. Ganganapalle reserve forest extension.	..	Do.	40	Do.	4
Madanapalle Range.					
15. Tavalam reserve forest.	..	Do.	10	Do.	1
16. Avulakonda reserve forest.	..	Do.	20	Do.	2
17. Horsleykonda reserve forest.	..	Do.	50	Do.	4
18. Horsleykonda reserve forest extension.	..	Do.	10	Do.	1
19. Eswaramala reserve forest.	..	Do.	20	Do.	..
20. Kokkanti reserve forest.	..	Do.	10	Do.	1
21. Tummala reserve forest.	..	Do.	20	Do.	1

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
1	..	..	..	2	..	..	..	..	..	..
1	..	..	..	2	..	..	4	..	..	..
1	..	..	..	2	..	..	..	..	..	..
2	..	..	..	2	..	..	..	..	..	..
1	..	..	..	2	..	..	..	..	..	..
4	..	..	..	8	..	..	8	..	..	..
4	..	..	..	8	..	..	5	..	..	..
1	..	..	..	2	..	..	..	..	..	..
2	..	..	..	4	..	..	..	..	..	..
4	..	..	..	8	..	..	..	..	..	..
1	..	..	..	2	..	..	..	..	..	..
3	..	..	..	3	..	..	..	..	..	..
1	..	..	..	2	..	..	..	..	..	..
3	..	..	..	4	..	..	..	..	..	..

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year 1st April 1929. (6)
SECOND CIRCLE—*cont.*		YEARS.	ACS.		ACS.
SANDALWOOD PROPAGATION CENTRES—*cont.*					
Anantapur division—cont.					
Madanapalle Range—*cont.*					
22. Nigadi reserve forest..	..	1928-29 to 1937-38 (ten years).	30	Dibbling of seeds in one acre plots.	3
Hospet Range.			..	..	
23. Gunda, Bandri, Somalapuram and Sivapuram.	..	Do.	60	Do.	1
24. Moka	..	Do.	10	Do.	1
25. Banavasi	.. ..	Do.	.. 10	Do.	1
26. Kuppagal	..	Do.	10	Do.	..
Vempalle Range.					
27. Gorivikanama reserved forest.	..	Do.	40	Do.	4
28. Idupulapaya	..	Do.	40	Do.	4
29. Idupulapaya extension.	..	Do.	30	Do.	3
30. Idupulapaya palmyra plantation.	..	1929-30	Not specified but blanks to be filled up with palmyra seeds.	Sowing 2,500 seeds in blanks.	..
Total ..	..	..	570	..	45
Kurnool East division.	..				
1. Maddipenta felling series.	Timber improvement *cum* clear felling working circle.	40 years from 1928-29.	1,265	Clear felling and artificial regeneration by broadcast sowing on burnt debris.	72
2. Mogulutla felling series.	Do.	Do.	2,278	Do.	95

plans or schemes during the year 1929-30 -- *cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.		
3	..	..	..	6	..	..	..	..	..	..
9	..	..	..	10	..	..	..	..	..	..
1	..	..	..	2	..	..	..	..	..	..
1	..	..	..	2	..	..	..	..	..	..
2	..	..	..	2	..	..	..	..	..	..
4	..	..	..	8	..	..	..	..	..	..
4	..	..	..	8	..	..	..	..	..	..
3	..	..	..	6	..	..	..	..	..	..
..	12	..	12	..	..	..	23	..	..	..
66	57	..	57	111	..	..	298	282	..	..
..										
35	..	..	..	107	..	10	..	10	..	..
94	..	..	..	189	54	61	54	61	..	..

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year 1st April 1929. (6)
SECOND CIRCLE—*cont.*		YEARS.			ACS.
SANDALWOOD PROPAGATION CENTRES—*cont.*					
Kurnool East division —cont.					
3. Thummalabylu felling series.	Timber improvement *cum* clear felling working circle.	40 years from 1928–29.	2,268	Clear felling and artificial regeneration by broadcast sowing on burnt debris.	54
Total ..			5,809	..	221
Kurnool West	Old Veldurti working circle.	10 years.	15 acres ..	Cultural operations and sowing of palmyra seeds in 1¼ acres.	..
.. ..	Gundlabrahmeswaram working circle, working plan sanctioned in R.P.F. No. 132, dated 24th July 1912.	Do. ..	Stump planting in blanks over 15 chains in extent up to 10 acres.	Planting with teak and Nallamaddi seeds.	9·50
.. ..	Pecheruvu working circle, working plan sanctioned in Chief Conservator's Mis. No. 308, dated 8th December 1925.	5 years ..	Tending in sandal coupes.	Tending operations.	55
.. ..	....	..	..	Dibbling sandal seeds.	231
Pasurutla *c* III	Under the new working plan for Nallamalai ranges under preparation.	..	..	Clearing the bamboos, cutting the useless stuff and sowing seeds in Bairluty Range.	..
Naguluty *c* III		..	..		..
Bairluty *c* IV		..	..		..
Sudem *c* IV		..	..		..
Pasurutla *c* IV	Do. ..	..	..	Cutting down bamboo regrowth in 1928–29.	..
Bairluty *c* V	Do. ..	..	..		..
Naguluty *c* IV	Do. ..	..	..		..
			..	Coupes and stacking out seedling in Pole coupes.	

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.		
41	..	..	..	95	29	29	29	29	..	..
170	..	..	..	391	83	100	83	100	..	..
..	17·50	..	17·50	..	..	..	81	191	..	..
..	0·60	..	0·60	9·50	..	..	..	242	..	..
..	..	..	..	55	..	..	..	25	..	..
2	4	2	6	231	35	..	139	40	..	..
39	..	..	..	39	..	65	..	65	..	..
50	..	..	..	50	..	150	..	150	..	..
50	..	..	..	50	..	318	..	318	..	..
26	..	..	..	26	..	259	..	259	..	..
43	..	..	..	43						
57	..	..	..	57	..	106	..	106	..	..
50	..	..	..	50						

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area in which regeneration was in progress at commencement of year 1st April 1929. (6)
SECOND CIRCLE—*cont.*		YEARS.	ACS.		ACS.
SANDALWOOD PROPAGATION CENTRES—*cont.*					
Kurnool East division —cont.					
Pangidi coupe III ..	Under the new working plan for Nallamalai ranges under preparation.	..	..	Cutting down bamboo re-growth in 1928-29. Coupes and stacking out seedling in pole coupes.	..
	Total ..	..	20	..	295·50
North Cuddapah division.					
Sidhout range.					
Sandal sowings in six beats.	Sandal Working circle, sanctioned in Chief Conservator's Proceedings No. 274, Press, dated 1st August 1928.	..	30	..	1·00
Sandal sowings in eight beats at half acre each plot.		..	40	..	3·75
Sandal sowings in ten beats at half acre each plot.		..	50	..	1·50
Sandal sowings in 12 beats at half acre each plot.		..	60	..	2·50
Sandal sowings in ten beats at half acre each plot.		..	50	..	1·50
Vaneswaram sandal plot ..	These plots were existing before the sanction of the working plan.	..	..	..	0·62
Rollaboiu sandal plot ..		..	..	..	0·81
Kothabhavi sandal plot ..		..	..	..	35·00
Thorthalu sandal plot ..		..	..	..	0·50
Boreni sandal plot ..		..	..	..	0·50
Chinnaletipatibhavi plot..		..	..	..	0·50
Mamilleru sandal plot ..		..	..	..	0·50
Idamadaka sandal plot ..		..	..	..	0·50
Dasarladoddi		..	..	..	20·00

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year, 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During year, 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.		ACS.	ACS.	RS.	RS.	RS.	RS.		
73	..	..	..	73	..	12	..	12	..	..
390	22·10	2	24·10	683·50	35	910	220	1,408	..	..
3·00	..	..	..	4·00	..	..	..	..	..	..
4·00	..	..	..	7·75	..	..	..	..	..	..
5·00	..	..	..	6·50	..	..	..	..	..	..
6·00	..	..	..	8·50	..	..	..	..	..	..
6·69	..	..	..	8·19	..	..	..	..	..	..
..	0·62	..	0·62	..	..	5	..	60	..	..
..	0·81	..	0·81	..	..	5	..	48	..	..
..	35·00	..	35·00	..	..	..	9	..	..	..
..	0·50	..	0·50	..	..	..	5	..	..	..
..	0·50	..	0·50	..	..	..	4	..	..	..
..	0·50	..	0·50	..	..	..	9	..	..	..
..	0·50	..	0·50	..	..	..	5	..	..	..
..	0·50	..	0·50	..	..	..	4	..	..	..
..	20·00	..	20·00	..	..	..	..	..	..	..

Progress in afforestation and regeneration and working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area in which regeneration was in progress at commencement of year 1st April 1929. (6)
SECOND CIRCLE—*cont.*		YEARS.	ACS.		ACS.
SANDALWOOD PROPAGATION CENTRES—*cont.*					
North Cuddapah division—cont.					
Sidhout range—*cont.*					
Timber improvement coupes of all ranges.	Timber Improvement Working circle.	1928-29 to 1938-39.	..	Early burning, cutting back, seedling dumping and burning debris and sowing seeds on ashes.	..
Total ..		..	230	..	69·18
South Cuddapah division.					
Rajampet range	Coupe IV of Rajampet Improvement Felling Series.	1920-21	..	..	3·00
Kodur range	Coupe VI of Gadithalapenta Fuel Series.	1921-22	..	..	0·50
.. ..	Old coupe XVIII of Gadithalapenta.	..	..	..	0·50
.. ..	Coupe X near Thotamorappa kunta.	1921-22	..	..	1·00
.. ..	Coupe XIII of Gadithalapenta Fuel coupe near 8th mile.	..	..	..	1·00
Balapalli range	Coupes II and VII of Balapalli West Fuel Series.	1920-21 and 1922	..	..	10·00
..	Thunukonda Fuel coupes IV to VII.	1921-22	..	..	10·00
Chitvel range	Kodur East Fuel coupe XIII.	1919-20	..	..	3·00
Total ..		..	..	..	29·00
Grand total of the circle.. ..		..	6,629	..	659·68

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year (31st March 1930).	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During the year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS	RS.	RS.	RS.	RS.
1,041	..	..	..	1,041	..	..	..	..	..	..
1,065·69	58·93	..	58·93	1,075·94	..	10	36	108	..	..
..	3·00	..	3·00	..	..	..	4	..	..	..
..	0·50	..	0·50	..	..	..	10	..	..	..
..	0·50	..	0·50	..	..	..	10	..	..	..
..	1·00	..	1·00	..	..	..	..	..	..	..
..	1·00	..	1·00	..	..	..	5	..	..	..
..	10·00	..	10·00	..	..	..	4	..	..	..
..	10·00	..	10·00	..	..	..	10	..	..	..
1·00	3·00	1·00	4·00	3	2	..	6	..	..	..
1·00	29·00	1·00	30·00	3	2	..	49	..	..	..
1,692·69	167·03	3·00	170·03	2,264·44	120	1,020	690	1,894	..	..

Progress in afforestation and regeneration under working

Division (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year (1st April 1929). (6)
FOURTH CIRCLE.		YEARS.	ACS.		ACS.
Chittoor.					
....	Sandal regeneration working circle. All the compartments.	1st April 1929 to 31st March 1930.	204	Sandal seeds to be dibbled.	Nil.
....	Timber regeneration working circle compartments I and II in each of the 4. Timber Regeneration series.	Do.	2,027	Early burning, cutting back seedlings early burnt, cutting of creepers and sowing of seeds in blank areas.	320
Total ..			2,231	..	320
Vellore.					
....	Virinchipuram Working Circle.	1888-89 to 1929-30.	Blanks in felled coupes.	Dibbling seeds of timber species.	..
....	Chenur Working Circle.	Do.	Do.	Do.	..
....	Kilminnal Working Circle.	Do.	Do.	Do	..
....	Tiruvallam Working Circle.	Do.	Do.	Do.	..
Total ..			..	..	..
Central Salem.					
....	Kurumbapatti Palmyra tope.	16 years from 1926-27.	379	Sowing palmyra seed.	..
....	Shevroys' Central Working Circle.	4 years.	321	Planting silver oak and cyprus and sowing seeds of Australian wattle.	..
....	Sanniyasimalai Working Circle.	One year.	4	Planting Acacia Decurrens and blue gum.	..

(*a*) Cost of establishment.
(*b*) Tending of sandal saplings in Vannivedu Plantation.

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year (31st March 1930).	Expenditure during year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During the year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
204	..	..	..	204	..	..	..	..	..	..
323	..	..	..	643	306	..	356	..	..	..
527	..	..	..	847	306	..	356	..	..	..
..	283	..	283	..	..	504	9,552	57,141	1,120	45,067
..	142	..	142	..	..	(a) 468	4,623	4,417	56	7,600
..	104	..	104	..	..	(a) 396	3,157	27,045	2,731	30,573
..	111	..	111	..	..	(a) 324 (b) 20	7,319	61,205 20	852	36,654
..	640	..	640	..	..	1,712	24,651	1,49,828	4,759	1,19,894
31	44	31	75	..	125	..	312	..	312	728
..	143	..	143	..	..	..	..	9,096	..	..
..	4	..	4	..	..	108	..	..	..	..

Progress in afforestation and regeneration under working

Division.	Working circle and block.	Period.	Area to be regenerated during period.	Method of treatment.	Area on which regeneration was in progress at commencement of year (1st April 1929).
(1)	(2)	(3)	(4)	(5)	(6)
FOURTH CIRCLE—*cont.*		YEARS.	ACS.		ACS
Central Salem—cont.					
....	Jalluthu Working Circle.	1927-28.	114	1. Felling of fuel coupes under simple coppice. 2. Sowing seeds of indigenous species in blank areas.	
			...		
Total ..			818	..	..
Grand total ..			3,049	..	320
FIFTH CIRCLE.					
SOUTH COIMBATORE.					
Mount Stuart Working Circle,					
1918-19 Regeneration area.	..	..	..	..	..
1919-20 do.	..	..	..	..	..
1920-21 do.	..	..	..	..	..
1922 do.	..	..	..	..	..
1923	..	..	..	..	..
1924	..	..	..	..	..
1925	..	..	..	..	..
1926	..	..	..	..	..
1927	..	..	..	..	..
1928	..	..	..	..	..
1929	..	..	..	..	151
1930	..	..	202	..	..
Waterfall Plantation ..	..	..	..	..	..
Experimental Plantation, Mount Stuart.	..	..	..	..	..
Experimental Plantation, Karian Shola.	.. ..	.. ..	..	.. ..	..
Experimental, Topslip (clearing for trying species other than teak).					
Planting 2,000 Eucalyptus seedlings from nursery pits round Topslip.	..	..	..	..	..
Undersowing Artocarpus Hirsuta.	..	..	..	..	..

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area in which regeneration is complete.			Area on which regeneration is still in progress at close of year (31st March 1930)	Expenditure during year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During the year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
..	114	..	114	..	..	..	..	..	..	..
31	305	31	336	..	125	108	312	9,696	312	728
558	945	31	976	847	431	1,820	25,319	1,58,924	5,071	1,20,622
..	..	..	..	..	..	..	..	..	..	..
..	29	..	29	..	..	56	643	802	..	..
..	8	..	8	..	..	..	584	576	Abandoned.	
..	29	..	29	..	..	7	545	1243	..	..
..	126	..	126	..	..	7	3,358	4,291	..	..
..	194	..	194	..	..	7	5,055	5,683	..	..
..	226	..	226	..	..	352	6,459	4,814	..	..
..	260	..	260	..	..	37	9,986	6,385	..	..
..	251	..	251	..	..	292	15,251	1,738	..	..
..	155	..	155	..	..	394	5,405	5,143	..	..
..	144	..	144	..	..	1,489	4,124	3,646	..	..
22	..	151	151	..	160	2,995	4,133	2,995	..	..
..	..	..	..	202	3,860	..	3,860	..	..	..
..	12	..	12	..	..	..	..	..	..	..
..	5	..	5	..	..	10	..	78	..	..
..	1	..	1	..	..	..	..	12	..	..
..	10	..	10	..	..	..	31	..	..	..
..	..	..	..	..	..	..	57	..	..	..
..	..	..	..	..	..	..	22	..	..	..

Re for the Fourth Circle.—The areas noted in the previous year's return against South Salem Division ere felled fuel coupes the blanks in which were dibbled with seeds. There was no regeneration area, dibbling method or transplanting.

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year (1st April 1929). (6)
FIFTH CIRCLE—*cont.*		YEARS.	ACS.		ACS.
SOUTH COIMBATORE—*cont.*					
Mount Stuart Working Circle—cont.					
Formation of Hopea nurseries.	..	..	..	..	..
Punachi Working Circle.					
Regeneration plots in coupes IX and X.	..	..	..	..	..
Two-acre plot in coupe II.	..	..	..	..	..
Three-acre plot in coupe XV.	..	..	..	..	..
1924 Regeneration area in coupes XIV and XVI.	..	..	..	..	..
Ten-acre plot in coupe XV.	..	..	..	..	..
1925 Regeneration area in coupes XII and XIII.	..	..	..	..	..
Periodic block I, 1925-26.	..	..	..	..	..
Regeneration area, 1926-27.	..	..	..	..	..
Periodic block I, 1928 ..	..	..	..	..	..
1929 ..	..	..	..	..	25
1930 ..	..	..	25	..	..
NORTH COIMBATORE.					
Mettupalaiyam range Mannar Sandalwood Working Circle.	..	..	..	Dibbling sandal seeds.	..
Jaccanarai Sandalwood compartment.	..	..	..	Do.	..
MADURA.					
Vannathiparai Cumbum Valley experimental scheme.	..	5 years from 1927-28 to 1932-33.	5	Clear-felling, burning and planting.	13
Total ..	..	..	232	..	189

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year, 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During the year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
..	..	..	..	..	..	..	45	..	..	..
					(a)4,020	5,646 (c)	(b)59,558	37,406		
..	5	..	5	..	..	6	86	128	..	..
..	2	..	2	..	..	..	75	27	..	..
..	3	..	3	..	..	..	146	98	..	..
..	25	..	25	..	..	15	524	1,134	..	..
..	10	..	10	..	..	..	245	404	..	..
..	25	..	25	..	..	..	431	25	..	..
..	25	..	25	..	..	37	327	95	..	..
..	25	..	25	..	..	37	22	157	..	..
..	25	..	25	..	..	40	185	100	..	..
..	..	25	25	..	71	..	160	..	..	..
..	..	..	..	25	114	..	114	..	..	..
..	132	..	132	..	..	..	69	75	..	..
..	108	..	108	..	..	..	30	..	..	..
5	..	18	18	..	384	..	1,120	..	1,200	3,753
232	1,835	194	2,029	227	4,589	5,781	63,092	39,649	1,200	3,753

(a) Excludes Rs. 400 spent on collection of seeds.
(b) Excludes Rs. 1,246 spent on collection of seeds.
(c) Rs. 3,875-14-0 has been adjusted to General Forest Administration, the balance remaining unadjusted will be adjusted by Accountant-General after completion of audit of accounts for 1929-30.

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area on which regeneration was in progress at commencement of year (1st April 1929). (6)
SIXTH CIRCLE.		YEARS.	ACS.		ACS.
Mangalore, North ..	Coupe I, Catechu working series in Baindur and Wandse series.	1926-27	375 acres in coupe I, Baindur and 180 acres in coupe I, Wandse series.	Fencing and sowing Acacia catechu at staves 12' × 12' on filled pits 1' × 1' × 10".	120 acres (51 in Baindur coupe I and 69 acres in coupe II, Baindur).
	Coupe II, Catechu working series.	1927-28	580 acres in Baindur coupe II and 785 acres in Wandse coupe II.		75 acres in coupe II, Baindur.
	Coupe III, Catechu working series.	1928-29	550 acres in coupe III of Baindur series and 1,030 acres in coupe III, Wandse series.		13 acres in coupe III of Baindur and 76 acres in coupe III, Wandse series.
	Coupe IV of Wandse working series.	1929-30	1,470 acres in coupe IV of Wandse series.		..
Total ..	....	..	4,970	..	284
Wynaad *	Experimental working circle, Begur and Chedleth ranges.	1892-93 to 1929-30	(a) 1,551	Regular planting and Taungya planting.	(b) 128
	Cultural operations in Begur and Chedleth ranges.	..	..	Patch regeneration by dibbling seeds.	..
	Clear-felling working circle in Begur and Chedleth ranges.	1929-30 to 1938-39.	(a) 1,500	Concentrated regeneration by stump planting.	..

*In 1928-29 the details relating to the division were shown in Form 34-B as there was no working plan. Such of the details as relate to working plan areas are now shown here.

Note.—(a) Total area provided in the working plan. One-hundred and fifty-six acres not planted in Begur range.

(b) The area of 1929 plantation in Begur and Chedleth ranges was found to be only 128 acres, although this was shown as 140 acres in the previous year's Form 34-B.

plans or schemes during the year 1929-30—*cont.*

Area in which regeneration commenced during the year 1st April 1929 to 31st March 1930. (7)	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year (31st March 1930). (11)	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year. (16)	Total revenue from date of creation. (17)
	Previous. (8)	During the year 1st April 1929 to 31st March 1930. (9)	Total to 31st March 1930. (10)		Creation. (12)	Upkeep. (13)	Creation. (14)	Upkeep. (15)		
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
..	..	..	..	120	..	126	352	401	..	..
..	..	..	..	75	..	170	396	335	..	..
..	..	..	..	13	..	64	86	64	..	..
				76	..	134	440	134	..	..
34 acres in coupe IV of Wandse series.	..	..	..	34	297	..	297	..	..	..
34	..	..	..	318	297	494	1,671	934	..	..
..	(*c*) 1,267	128	1,395	..	5,558	5,174	(*d*) 58,386	47,615	266	28,234
..	(*e*) 227	..	227	..	..	..	1,924	160	..	..
152	..	..	..	152	4,033	..	4,033	..	..	..

(*c*) Revised area adopted for the old plantations as per working plan.
(*d*) Expenditure on failed areas has been excluded.
(*e*) Patch regeneration done in Begur and Chedleth Ranges from 1914-15 to 1921-22, now shown in this return as the area is covered by working plan.

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area in which regeneration was in progress at commencement of year (1st April 1929). (6)
SIXTH CIRCLE—*cont.*		YEARS.	ACS.		ACS.
Wynaad	Selection felling working circle felling series I and III in Begur and Chedleth ranges.	(*a*) 1929-30 to 1938-39	(*a*) 6,924	Patch regeneration by dibbling and stump planting.	..
..	Improvement felling working circle in Sultan's Battery range.	..	..	Taungya planting.	..
..		..	..	Patch planting.	..
					1
Total ..	..	..	9,975	..	129
Nilambur	Plantation working circle.	1928-29 to 1937-38	1,290	Artificial	(*h*) 82
..	Conversion working circle.	Do.	2,209	Do.	168
	Beypore Coconut tope.	1929-30	..	Do.	..
Total ..	..	..	3,499	..	250
The Nilgiris	Mudumalai clear felling working circle.	1927 to 1937	300	Artificial regeneration.	12·5
..	Do. ..	Do.	105 (one acre per 100)	Dibbling sandal seeds.	..
..	Sandalwood area, Segur range.	1929-30	25	Do.	..
..	Sandalwood area, Coonoor range.	..	25	Do.	..
..	Nilgiris plantations.	..	..	..	..
..	Aramby Block V, compartment 17 B.	1929-30	..	Artificial regeneration by planting bluegum.	..
..	Baikie Block IV, compartment I.	Do.	..	Do.	..
..	Snowdon Block III, compartment 2 B.	Do.	..	Do.	..
..	Snowdon Block III, compartment 3.	Do.	..	Do.	..

(*h*) Excludes 4 acres handed over to the Forest Research Officer.

(*i*) Excludes 5 acres regenerated with Aini being failed area.

plans or schemes during the year 1929-30—*cont*.

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year (31st March 1930).	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During the year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
576	..	..	..	576	197	..	197	..	..	..
..	(*f*) 9	...	9	..	..	..	..	117	..	..
..	1	1	(*g*) 2	..	17	5	67	76	..	..
728	1,504	129	1,633	728	9,805	5,179	64,607	47,968	266	28,234
120	(*i*) 242	104	346	98	4,459	..	11,914	..	..	..
190	94	172	266	186	11,160	..	20,474	..	..	..
..	37	..	37	..	..	1,686	884	14,219	..	..
310	373	276	649	284	15,619	1,686	33,272	14,219	..	..
20	(*j*) 10	12·5	22·5	20	1,132	69	2,525	286	920	2,299
4	1	..	1	4	24	..	27	..	..	..
25	25	25	50	..	44	..	128	..	..	..
25	25	25	50	..	80	34	175	34	..	..
..	..	..	..	..	..	..	..	..	..	..
..	3·7	..	3·7	..	..	..	95	12	..	..
..	1·5	..	1·5	..	..	..	27	..	..	..
..	4·5	..	4·5	..	..	..	4	..	..	..
..	1	..	1	..	..	..	10	..	..	..

(*f*) Tuckle plantation in Sultan's Battery range created in 1917-18.
(*g*) Experimental patch regeneration in Sultan's Battery range of sandalwood and satinwood.
(*j*) 20 acres shown in the previous return is reported to be a mistake for 10.

Progress in afforestation and regeneration under working

Division. (1)	Working circle and block. (2)	Period. (3)	Area to be regenerated during the period. (4)	Method of treatment. (5)	Area in which regeneration was in progress at commencement of year (1st April 1929). (6)
SIXTH CIRCLE—*cont.*		YEARS.	ACS.		ACS.
The Nilgiris—*cont.*	Brooklands compartment 3.	1929-30	..	..	..
	Springfield compartment 2.	..	..	Artificial regeneration with Eucalyptus eugenoides.	..
	Springfield compartment 3.	..	..	Artificial regeneration with Eucalyptus pillularis.	..
	Springfield compartment 4.	1929-30	5·8	..	..
	Springfield compartment 5.	..	5·8	Artificial regeneration with Eucalyptus pillularis.	..
	Springfield Block II, compartment 2 A.	1929-30	3·2	Artificial regeneration with eucalyptus globulus.	..
	Governorshola Block VI, compartment 4.	Do.	6·4	Artificial regeneration with Eucalyptus bluegum.	..
	Governorshola Block VI, compartment 1.	Do.	10	Do.	..
	Cairnhill Block I, compartment 9.	Do.	3	Do.	..
	Marlimund Block III, compartment 1.	Do.	3·7	Do.	..
	Aramby Block VII, compartment 3.	Do.	3·0	Do.	..
	Brooklands compartment 4.	Do.	5·3	Do.	..
Total ..	....	..	501·2	..	12·5
Palghat	Walayar Forest Pole working circle Block I, compartment 3.	1926-27	165	Teak stump planting in patches where natural regeneration at seedlings or coppice is insufficient.	..

plans or schemes during the year 1929-30—*cont.*

Area on which regeneration commenced during the year 1st April 1929 to 31st March 1930.	Area in which regeneration is complete.			Area on which regeneration is still in progress at close of year (31st March 1930).	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation.
	Previous.	During year 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation.	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
...	5	..	5	..	..	33	211	33	..	..
..	5·2	..	5·2	..	..	18	145	18	..	..
..	5·2	..	5·2	..	..	16	141	16	..	..
5·8	..	5·8	5·8	..	120	..	120	..	..	..
5·8	..	5·8	5·8	..	125	..	125	..	..	..
3·2	..	3·2	3·2	..	36	..	36	..	..	..
6·4	..	6·4	6·4	..	52	..	52	..	..	..
10	..	10	10	..	178	..	178	..	..	..
3	..	3	3	..	45	..	45	..	..	..
3·7	..	3·7	3·7	..	42	..	42	..	..	..
3	..	3	3	..	46	..	46	..	..	..
5·3	..	5·3	5·3	..	195	..	195	..	..	..
46·2	87·1	105·7	192·8	..	2,119	170	4,367	399	920	2,299
..	181	..	181	..	..	91	2,245	1,147	..	..

Progress in afforestation and regeneration under working

Division.	Working circle and block.	Period.	Area to be regenerated during the period.	Method of treatment.	Area in which regeneration was in progress at commencement of year (1st April 1929).
(1)	(2)	(3)	(4)	(5)	(6)
SIXTH CIRCLE—*cont.*		YEARS.	ACS.		ACS.
Palghat—*cont.*	Pole working circle, Block II, compartment 8, coupe I.	1927-28	110	Teak stump planting in patches where natural regeneration at seedlings or coppice is insufficient.	..
	Pole working circle, Block II, compartment 8, coupe II.	1928-29	107		..
	Pole working circle, Block II, compartment 8, coupe III	1929-30	79		..
	....	1930-31	..		..
	....	1931-32	..		..
	Bolampatty Forests, Ponam working circle, compartment 17, coupe I.	1926-27	47	Ponam ..	..
	Bolampatty Forests, Ponam working circle, compartment 16, coupe II.	1927-28	53	..	..
	Ponam working circle, compartment 16, coupe III.	1928-29	30	Ponam ..	..
	Ponam working circle, compartment 16, coupe IV.	1929-30	28	Do. ..	..
	....	1930-31	..	Clearing the area.	..
	Mullangadu compartment 27.	1927-28	120		..
	Singapathi coupe II.	1928-29	33		..
	Mullangadu coupe II.	..	31		..
	Kallar coupe I ..	..	18		..
	Half of Kallar coupe II.	..	16		..
	Do.	1929-30	15		..
	Half of Kallar strip II of Singapathi coupe III.	..	13		..
Total ..	....	..	865	..	..
Grand Total ..	....	..	11,810·2	..	675·5

plans or schemes during the year 1929-30—*cont.*

Area in which regeneration commenced during the year (1st April 1929 to 31st March 1930).	Area on which regeneration is complete.			Area on which regeneration is still in progress at close of year, 31st March 1930.	Expenditure during the year.		Expenditure from commencement of period.		Revenue during the year.	Total revenue from date of creation
	Previous.	During year, 1st April 1929 to 31st March 1930.	Total to 31st March 1930.		Creation.	Upkeep.	Creation	Upkeep.		
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
ACS.	ACS.	ACS.	ACS.	ACS.	RS.	RS.	RS.	RS.	RS.	RS.
..	112	..	112	..	..	112	1,733	445	..	..
..	125	..	125	..	..	183	1,064	183	..	..
79	..	79	79	..	585	..	1,039	..	..	..
..	..	..	..	..	452	..	477	..	..	..
..	..	..	..	..	138	..	138	..	..	..
..	45	..	45	..	..	15	26	118	..	..
..	44	..	44	..	..	286	3	554	..	..
..	25	..	25	..	..	378	111	378	..	..
28	..	28	28	..	20	..	142	..	..	..
..	..	..	..	..	122	..	122	..	..	..
..	120	..	120	..	..	..	..	180	..	..
..	33	..	33	..	..	..	..	99	..	..
..	31	..	31	..	..	..	..	34	..	..
..	18	..	18	..	..	..	..	50	..	..
..	16	..	16	..	..	..	..	111	..	..
15	..	15	15	..	..	30	..	30	..	..
13	..	13	13	..	..	36	..	36	..	..
135	750	135	885	..	1,317	1,131	7,100	3,365	..	..
1,253·2	2,714·1	645·7	3,359·8	1,330	29,157	8,660	1,10,917	66,885	1,186	30,533

ANNUAL FORM

Forest Department,

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
FIRST CIRCLE.					
Regular Plantations.		ACS.	ACS.	ACS.	ACS.
Guntur	Muthayapalam	5	..	..	5
Nellore	Casuarina Planting ..	162	..	..	162
	Total ..	167	..	..	167
Taungya Operations.					
Godavari, Upper.. ..	Taungya operations ..	254	20	..	274
Cultural Operations.					
Vizagapatam	Tangedu experimental plot in Arlova reserved forest 1928-29.	(a) 5	1	..	6
	Sal experimental plots in Makava and Polla in Palakonda range, 1929-30.	..	1·5	..	1·5
Godavari, Upper.. ..	Clear-felling to establish a better quality of trees and tending, etc.	1,819	253·5	..	2,072·5
Godavari, Lower ..	Artificial regeneration with teak.	25	16	..	41
Guntur	Muthayapalam, 1912-13 ..	5	..	..	5
	Guttikonda, 1924-25 ..	6	..	..	6
	Venkatayapalem, 1926-27.	3	..	..	3
	Kondapalli Sandal, 1927-28.	1	..	..	1
	Nachugunta, 1927-28 ..	0·2	..	..	0·2
	Srigiripad, 1926-27 ..	3	..	3	..
	Davupalli and Kakirala, 1926-27.	1	..	1	..
	Venkatayapalam, 1927-28.	0·5	..	0·5	..
	Venkatayapalam Sandal, 1927-28.	1	..	1	..
	Srigiripad Sandal, 1927-28.	2·5	..	2·5	..
	Guttikonda Parcelle, 79, 1927-28.	10	..	10	..
	Guttikonda Parcelle, 56, 1927-28.	1	..	1	..
	Guttikonda Extension 8, 1927-28.	1	..	1	..
	Bollapalli Parcelle 65, 1927-28.	20	..	20	..

(a) Omitted by

No. 34-B.

Madras.

during the year 1929–30.

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
Rs.	Rs.	Rs.	Rs.	Rs.	Acs.	Rs.	Rs.	Rs.	Rs.
..	9	193	9	202	..	..	202	9	9
..	252	1,56,709	17,918	1,74,627	..	..	1,74,627	7,455	3,32,228
..	261	1,56,902	17,927	1,74,829	..	..	1,74,829	7,464	3,32,237
535	224	1,727	1,262	2,989	..	447	2,542	3,768	28,220
32	6	32	(a) 11	43	..	..	43	..	..
3	..	3	..	3	..	..	3	..	..
4,624	783	50,667	1,937	52,604	..	..	52,604	72,429	2,80,573
298	..	722	462	1,184	..	..	1,184	..	..
..	..	22	..	22	..	..	22	..	..
..	..	..	..	..	..	..	..	..	..
..	..	38	..	38	..	..	38	..	..
..	..	5	..	5	..	..	5	..	..
..	..	11	..	11	..	..	11	..	..
..	..	29	36	65	..	..	65	..	..
..	..	23	14	37	..	..	37	..	..
..	..	5	..	59	..	..	59	..	..
..	..	5	..	5	..	..	5	..	..
..	..	25	15	40	..	..	40	..	..
..	..	15	..	15	..	..	15	..	..
..	..	8	..	8	..	..	8	..	
..	..	8	..	8	..	..	8	..	..
..	..	30	..	30	..	..	30	..	..

mistake last year.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres. At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year, 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
FIRST CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
CULTURAL OPERATION —*cont.*					
Guntur	Nayudupalem Block No. I Babul, 1927-28.	10	..	10	..
Nellore	Sreeharikota, 1927-28 ..	3·8	1·2	..	5·0
	Kambukkam Hill Sandal, 1927-28.	10	2	..	12.
	Udayagiri Durgam Hill, Reserved Forest.	..	6·72	..	6·72
	Total ..	1,928·00	281·92	50·0	2,159·92
SECOND CIRCLE.					
REGULAR PLANTATION.					
Anantapur Division.					
Hospet Range.					
Moka plantation	Casuarina and Sissoo, 1907 to 1913.	489	..	..	489
Kurnool East Division.					
Kurnool	1908 Teak Yegi Nallamaddi and Sandal in Telugu Rayanacheruvu Peddachama, Peddamantrala, Chinnamantrala and Maddipenta.	102	..	..	102
Kurnool, South	1923-24	71	..	..	71
Kurnool, West	Planting of teak trees, etc. 1905-06.	1,154	..	..	1,154
'South Cuddapah Division.					
(Kodur Red Sanders Plantation.)	Planted in 1865 the trees being planted 9' × 8' apart.	20	..	..	20
	Total ..	1,836	..	..	1,836
TAUNGYA PLANTATION.					
Kurnool West Division.					
Kurnool	Sowing of field crop, crops along with forest species 1921-22.	322	5	..	327

during the year 1929–30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement, excluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation.	Upkeep.	Creation.	Upkeep.	Total.					
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	54	..	54	..	..	54	..	..
7	..	50	..	50	..	..	50	..	..
49	..	103	..	103	..	..	103	..	..
16	..	16	..	16	..	..	16	..	..
5,029	789	51,871	2,475	54,400	..	..	54,400	72,429	2,80,573
..	..	9,374	65,030	74,404	91	..	63,090	4,225	18,462
..	..	38,471	26,169	64,640	231	..	27,569	..	22
..	..	2,295	654	2,949	110	..	1,194	..	..
..	519	2,35,950	70,508	3,06,458	276	..	3,06,458	2,847	32,789
..	144	23	1,944	1,967	..	..	1,967	1,100	18,842
..	663	2,86,113	1,64,305	4,50,418	708	..	4,00,278	8,172	70,115
20	..	5,895	120	6,015	..	..	6,015	..	718

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres. At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
SECOND CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
CULTURAL OPERATION.					
Anantapur division.					
Hospet Range.					
....	Kuppagal, 1905-06 ..	520	..	..	520
....	Banavasi, 1905-06 ..	272	..	..	272
....	Sivapuram (Sandalwood), 1927-28.	1	..	..	1
....	Gunda, 1927-28 (Tangedu seeds).	20	10	..	30
Madanapalle Range.					
Avulakonda Reserved Forest (Sandalwood).	Dibbling, 1921-22 ..	6	..	4	2
Horsleykonda Reserved Forest (Sandalwood).	Dibbling, 1921-22 ..	8	..	2	6
Pentsupad (Sandalwood).	Dibbling, 1922-23 ..	4·10	..	..	4·10
Tavalam (Sandalwood) ..	Do. ..	2	..	..	2
Horsleykonda (lantana clearance).	Do. ..	715	65	..	780
Horsleykonda (lantana clearance).	Dibbling, 1925	12	..	12	..
Horsleykonda (Planting accacia sundra).	....	180	..	180	..
Horsleykonda Bamboo dibbling.	....	11	..	10	1
Nigidi Reserved Forest (Sandal dibbling).	Dibbling, 1927-28 ..	28	..	28	..
	Total ..	1,779·10	75	236	1,618·10
Kurnool East division.					
Turimilla Range.					
Maddipenta Emergency coupes.	Tending seedlings in emergency coupes clear-felled 1921-22 to 1924-25.	53	..	..	53
Chinnamantrala Emergency coupes.	Tending seedlings in emergency coupes clear felled 1920-21 to 1924-25.	67	..	..	67
Kurnool South division.	Total ..	120	..	..	120
Timber Coupe II Baireni series.	Maintaining 200 seedlings per acre.	72	..	..	72
Timber Coupe II Isukagundam.	Maintaining 200 seedlings per acre.	200	..	..	200
Timber Coupe II Mamidigundam.	Maintaining 200 seedlings per acre.	47	..	..	47
Timber Coupe II Ulladavanka.	Maintaining 200 seedlings per acre.	57	..	..	57
Regeneration Coupe II at Isukagundam.	Weeding	23	..	..	23
	Total ..	399	..	..	399

during the year 1929–30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement exoluding failed areas.	Revenue during the year.	Total revenue from date of creation.
Creation.	Upkeep.	Creation.	Upkeep	Total.					
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	14,808	3,225	18,033	4,454	..	3,134	..	..
..	..	7,941	1,991	9,932	1,544	..	1,417	..	..
..	..	24	..	24	1	..	24	..	..
11	8	29	8	37	..	..	37	..	..
..	..	139	..	139	..	..	139	..	..
..	..	272	285	557	..	..	557	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
..	..	724	46	770	155	..	742	..	..
..	..	170	..	170	12	..	170	..	..
..	..	90	..	90	180	..	90	..	..
..	..	40	..	40	10	..	40	..	..
..	..	11	..	11	28	..	11	..	..
11	8	24,248	5,555	29,803	6,384	..	6,361	..	..
..	..	..	20	20	..	..	20	..	..
..	..	..	21	21	..	..	21	..	..
..	..	..	41	41	..	..	41	..	..
..	..	..	86	86	..	..	86	..	..
..	..	167	153	320	..	..	320	..	..
..	..	..	53	53	..	..	53	..	..
..	..	..	80	80	..	..	80	..	..
..	..	..	29	29	..	..	29	..	..
..	..	167	401	568	..	..	568	..	..

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres			
		At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year, 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
SECOND CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
CULTURAL OPERATION —*cont.*					
Kurnool West division.					
....	Dibbling, weeding, sowing and tending operations, 1919-20.	7,140	..	..	7,140
South Cuddapah.	Total ..	7,140	..	..	7,140
Rajampet Range.					
Bodeddulabhavi Plot ..	1920-21, Sandal sowing ..	1·0	1·0	..	2·0
Tummalabailu Plot I ..	Do. ..	1·0	1·0	..	2·0
Do. Plot II ..	Do. ..	1·0	1·0	..	2·0
Arimanipenta I	Do. ..	..	1 0	..	1·0
Do. II	Do. ..	..	1·0	..	1·0
Kodur Range.					
Around Papanasam Rest-house.	1921-22	0·5	..	..	0·5
Near Yerrabutla	1929-30	..	1·00	..	1·0
Near Buggavankah South of Umittala rest-house West of Umittala rest-house.	Sandal sowing, 1929-30 ..	..	3·00	3·00	..
Gundampenta	1928-29	2·0	..	..	2·0
Near 18th and 19th mile of Gundampenta rest house.	1929-30	..	1·00	..	1·0
Balapalle Range.					
Kangamadugu	1920-21	3·0	..	..	3·0
Mogilipenta	....	3·0	..	..	3.0
Kangamadugu	....	0 1	..	..	0·1
Approach Road to Balapalli rest-house.	....	square chain 0·1	..	..	0.1
By the side of Yerrodu Madugu.	1929-30	..	1·0	..	1·0
Cuddapah Range.					
Near Pullalamadugu ..	1920-21	8·0	..	..	8·0
Do. ..	1929-30	..	1·0	1·0	..
Korthimadugu rest-house.	1929-30	..	1·0	1·0	..
Thummalagundam Vankah.	....	..	1·0	1·0	..

during the year 1929-30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.		RS.	RS.	RS.	ACS.	RS.	RS.		
..	..	33,878	9,195	43,073	..	..	43,073	..	..
..	..	33,878	9,195	43,073	..	..	43,073	..	..
2	..	6	..	6	2·00	4	2	..	..
3	..	7	..	7	2·00	4	3	..	..
2	..	6	..	6	2·00	4	2	..	..
3	..	3	..	3	..	..	3	..	..
2	..	2	..	2	..	..	2	..	..
..	..	4	..	4	..	..	4	..	..
3	..	3	..	3	..	..	3	..	..
7	..	7	..	7	3	7	..	..	..
..	..	4	..	4	..	..	4	..	..
3	..	3	..	3	..	..	3	..	..
..	..	3	..	3	..	..	3	..	..
..	..	3	..	3	..	..	3	..	..
..	..	..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..	..	..
Done free of cost.			..	..	..	..	..	..	..
..	..	81	5	86	29	..	24	..	..
(a) 9	..	3	..	3	1	3	..	..	..
2	..	2	..	2	1	2	..	..	..
3	..	3	..	3	1	3	..	..	..

(a) Rupees 6 spent for basket, sowing and dibbling.

Plantations not under working-plans

Division and forest.	Method of formation and year of commencement.	Area in acres			
		At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
SECOND CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
CULTURAL OPERATION—*cont.*					
South Cuddapah—cont.					
Cuddapah Range—*cont.*					
Chennulabylu bhavi ..	....	..	1·0	1·0	..
Guvvalacheruvu	....	..	1·0	1·0	..
Chitvel Range.					
Moodurallagundam vankah.	1921-22	2·0	1·0	..	3·00
Gundalakona	1921-22	1·0	..	..	1·0
Kootalamarri	1918-19	3·0	1·0	..	4·0
Nookireddikona	1918	1·0	..	..	1·0
Mallalammakanama ..	1929-30	..	1·0	..	1·0
Chamakona	....	..	1·0	..	1·0
Sanipaya Range.					
Ammabhavi	1918-19	1·5	..	..	1·5
Mudampad rest-house compound.	....	2·0	..	..	2·0
Near old tana in Mudampad beat.	....	1·0	..	..	1·0
Nallakona vankah in Seshachellam, extension in Mudampad beat.	1918-19	0·5	..	..	0·5
Nallavanka kona ..	1929-30	..	1·5	1·5	..
Gudimadana vankah ..	....	..	1·7	1·7	..
Near Vagu to the south of Malakona.	....	..	1·7	1·7	..
Chelagadda narwa ..	....	..	2·0	..	2·0
Stream near Ippamanibhavi.	....	..	2·0	..	2·0
	Total ..	31·7	28·9	12·9	47·7
	Grand total for the circle.	9,469·80	103·9	248·9	9,324·80
FOURTH CIRCLE.					
Vellore.					
Ambur tope	Planting, 1913	6·00	..	..	6·00
Amerdi plantation ..	Clear felling and artificially stocking with timber species.	92·25	..	..	92·25
	Total ..	98·25	..	..	98·25

during the year 1929-30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation.	Upkeep	Creation.	Upkeep.	Total.					
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
2	..	2	..	2	1	2	..	..	..
3	..	3	..	3	1	3	..	..	..
2	..	24	..	24	..	..	24	..	..
..	..	4	..	4	..	..	4	..	..
3	..	25	..	25	4	8	17	..	..
..	..	8	..	8	..	..	8	..	..
2	..	2	..	2	..	..	2	..	..
3	..	3	..	3	..	..	3	..	..
Details not known.									
2	..	2	..	2	1·5	2	..	..	..
3	..	3	..	3	1·7	3	..	..	..
2	..	2	..	2	1·7	2	..	..	..
2	..	2	..	2	..	..	2	..	..
3	..	3	..	3	..	..	3	..	..
66	..	223	5	228	51·9	47	119	..	..
77	8	58,516	15,197	73,713	6435·9	47	6,480	..	..
..	*b*	..	15	15	..	..	15	88	1,731
..	13	3,102	2,215	5,317	..	..	5,317	3,478	10,796
..	18	3,102	2,230	5,332	..	..	5,332	3,566	12,527

Plantations not under working-plans

District.	Method of formation and year of commencement.	Area in acres. At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year, 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
FOURTH CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
Central Salem.					
Kurumbapatty plantation.	Sowing, 1920-21	1·75	..	..	1·75
Ayyanthirumaligai ..	Sowing, 1923-24	..	..	..	..
Chitteries	Lac cultivation, 1929-30.*	..	..	..	..
	Total ..	1·75	..	..	1·75
South Salem.					
Tope attached to the District Forest Officer's quarters.	Raising mango trees, 1904.	9·50	..	..	9·50
	Grand total ..	109·50	..	..	109·50
FIFTH CIRCLE.					
Madura.					
Gundan shola blue gum plantations.	....	245	..	..	245
Pambar pine plantations.	1906	842	..	..	842
Gundar valley	Planting accacia decurrens.	148	..	..	148
Velancombai teak plantation.	....	18	..	..	18
Vannathiparai teak plantation.	1870	4	..	..	4
Sethuvaikal new teak plantation.	1920-21	53	..	..	53
Alagar Hills Planting Mahagony.	....	3	..	..	3
Tinnevelly.					
Kudiramoli teri	Dibbling palmyra nuts ..	3,444	† 1,100	..	4,544
Kodamady teak plantation.	1917	111	..	..	111
Kariar teak plantation ..	1922-24	85	..	..	85
Richmond plantation ..	1906	1	..	..	1
Kariar Kani area ..	1912	23	..	..	23
Haynes plantation ..	....	23	..	..	23
Mundanthurai	Dibbling teak	10	..	..	10
North Coimbatore.					
Minchiguly plantation ..	Dibbling teak, vengai and rosewood seeds and watering and weeding 1918.	5	..	..	5
Ainagiri plantation ..	Planting seedlings of shola species, 1918.	42	..	..	42
	Total ..	5,057	1100	..	6,157

* Lac operations on 50 trees.

† Excludes 135 acres dibbled with palmyra nuts by lessees at their cost.

Note.—Rupees 97-8-0 was spent in dibbling sandalwood seeds as an experiment, but it is a failure.

during the year 1929-30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
	..	202	34	236	..	..	236	..	..
..	..	131	69	200	..	..	200	..	..
4	..	4	..	4	..	..	4	..	..
4	..	337	103	440	..	..	440	..	..
..	..	467	2,760 (*a*)—1,000	2,227	..	..	2,227	..	280
4	18	3,906	4,093	7,999	..	..	7,999	3,566	12,807
..	..	18,985	..	18,985	..	..	18,985	182	5,509
..	..	33,486	4,778	38,264	..	..	38,264	61	970
..	..	3,106	131	3,237	..	..	3,237	..	..
..	..	1,124	142	1,266	..	..	1,266	..	2,315
..	..	1,405	..	1,405	..	..	1,405	..	2·125
..	(*b*) 31	3,770	759	4,529	..	..	4,529	..	..
..	..	64	..	64	..	..	64	..	..
2,571	69	9,208	1,899	11,107	..	..	11,107	1,564	52,479
..	44	4,236	1,237	5,473	..	..	5,473	140	218
..	26	1,642	757	2,399	..	..	2,399	107	107
..	..	5	..	5	..	..	5	..	94
..	..	47	310	357	..	..	357	..	178
..	..	26	37	63	..	..	63	..	..
..	35	182	35	217	..	..	217	..	..
..	..	123	618	741	..	..	741	..	..
..	..	670	522	1,192	..	..	1,192	..	..
2,571	(*c*) 205	78,079	11,225	89,304	..	..	89,304	2,054	63,995

(*a*) Cost of well recovered from the Public Works Department.
(*b*) Includes Rs. 6 spent in planting satinwood in Cumbum Range.
(*c*) Excludes Rs. 53 spent for sandal anogeissus seeds in fuel areas, and uprooting grass in dibbled patches and Rs. 180 in undertaking cultural operation in the evergreen forests of Kannikatti, Tinnevelly.

Plantations not under working-plans

District.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year, 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
SIXTH CIRCLE.		ACS.	ACS.	ACS.	ACS.
Mangalore North.					
Someshwar	Sowing of Hopea, Dhupa and wild jack in prepared patches, 1920-21 and 1927-28.	659	..	..	659
	Preparing the ground for sowing of teak, xylia, resewood, etc., in gaps formed by timber felling in coupe IV, 1928-29 (funnel sowings)	2	..	..	2
	Preparing the ground for sowing of teak, xylia, resewood, etc., in gaps formed by timber felling in coupe V, 1929-30	..	4	..	4
	Preparing ground for sowing in 1930-31.	..	65	..	65
Jatkatmale	Sowing of Hopea and Dhupa in prepared patches.	1,139	..	..	1,139
Halesomeshwar	Sowing of Hopea in prepared patches.	1,744	..	..	1,744
Madibare	Sowing of xylia in prepared patches, 1927-28.	11	..	..	11
Kodimale	Sowing of Hopea in prepared patches, 1921-22.	52	..	..	52
	Total ..	3,607	69	..	3,676
Mangalore South.					
Parappa Reserved Forest, compartments V, VI and VII (portion).	Teak plantation, 1865 ..	17	..	17	..
Parappa Reserved Forest, do. VI (portion).	Sowing of deciduous species after clearfelling and burning 1924.	16	..	..	16
Parappa Reserved Forest compartment VIII (portion).	1926-27. do.	23	..	..	23
Parappa Reserved Forest, compartments I to X.	Sowing and planting of evergreen species.	1,967	..	..	1,967
Parappa Reserved Forest compartment IX (portion).	Sowing with Artocarpus hirsuta and Malia Dubia —area felled in 1926-27.	21	..	5	16
Jalsur Reserved Forest, East, coupes I and II.	Sowing and planting of Hopea under existing growth.	252	..	..	252
	Natural regeneration of evergreen species. 1926-27.	147	..	..	147

during the year 1929-30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	290	2,593	1,672	4,265	19	..	4,157	..	..
88	..	155	..	155	..	..	155	..	..
119	..	119	..	119	..	..	119	..	..
124	..	124	..	124	..	..	124	..	..
..	254	3,122	5,482	8,604	152	..	7,835	..	..
1,110	533	7,228	4,144	11,372	99	..	11,097	..	..
..	5	121	25	146	..	..	146	..	..
..	..	145	14	159	..	..	159	..	..
1,441	1,082	13,607	11,337	24,944	251	..	23,792	..	..
..	..	10,357	320	10,677	..	..	10,677	5,676	17,617
..	..	99	106	205	..	..	205	..	..
..	49	407	241	648	..	..	648	..	..
..	606	5,456	5,861	11,317	275	1,021	10,296	..	..
312	..	617	30	647	5	197	450	..	..
..	210	1,541	2,695	4,236	..	..	4,236	..	..
..	124	289	4,666	4,955	..	..	4,955	..	..

Plantations not under working-plans

District.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
SIXTH CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
Mangalore South—cont.					
Parappa Reserved Forest, compartment V (portion).	Sowing and planting of teak.	..	30	..	30
Aletti West Reserved Forest, strip II.	Artificial regeneration over 35 acres with Hopea, etc., and natural regeneration over 20 acres-area felled in 1928-29.	..	55	..	55
Porkala and Padnur ..	Sowing and planting of evergreen species, 1920-24 (mainly Hopea).	1,405	..	..	1,405
Nerankimale Reserve ..	Clear-felling, burning and sowing deciduous species.	89	..	..	89
Kidu Reserve	Natural regeneration of evergreen forests started in 1922.	19	..	..	19
Nalkur Reserve, coupes I and II.	Natural regeneration of evergreen forests started in 1922.	1,154	..	..	1,154
Sampaji Reserved Forest, coupe II.	Clear-felling, burning and sowing with teak-felled in 1929-30.	..	26	..	26
.. Do.	Experimental area clear-felling and burning with teak.	..	4	..	4
Mundaje Kap Reserved Forest.	Sowing and planting of evergreen species, 1926.	277	..	..	277
Do.	Sowing and plainting of evergreen species, 1927.	132	..	..	132
	Total ..	5,519	115	22	5,612
Wynaad					
.. ..	* Regular plantations ..	273	..	..	273
	Taungya do. ..	354	..	..	354
	Cultural operations ..	4	..	..	4
..	Total ..	631	..	..	631
Nilambur—Nil.					
The Nilgiris—Nil.					
Palghat— ..					
Puliyampatti tope reserve.	Taungya plantations, 1919-20.	20	..	..	20
Chañat Nayar	Cultural operations, 1920-21.	264	..	..	264
Vallapathi	Cultural operations, 1919-20.	39	..	..	39

* For variations—vide remarks in F. No. 34-A.

during the year 1929--30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
178	..	178	..	178	..	..	178	..	..
206	..	206	..	206	..	..	206	..	..
..	306	6,520	6,984	13,504	214	217	13,287	..	..
..	22	357	559	916	..	..	916	..	..
..	..	..	170	170	..	..	170	..	..
..	310	..	8,567	8,567	..	..	8,567	..	..
278	..	278	..	278	..	..	278	..	..
44	..	44	..	44	..	..	44	..	..
..	177	1,725	699	2,424	..	..	2,424	..	..
..	97	624	256	880	..	..	880	..	..
1,018	1,901	28,698	31,154	59,852	494	1,435	58,417	5,676	17,617
..	93	1,284	6,202	7,486	..	..	7,486	..	2,344
..	11	902	4,422	5,324	..	..	5,324	..	3,488
..	10	11	10	21	..	..	21	..	..
..	114	2,197	10,634	12,831	..	..	12,831	..	5,832
..	..	..	329	329	..	..	329	..	..
..	199	3,738	14,706	18,444	359	10,639	7,805	..	..
..	..	573	59	632	..	..	632	..	..

Plantations not under working-plans

District.	Method of formation and year of commencement.	Area in acres.			
		At commencement of year, 1st April 1929.	Added during year, 1st April 1929 to 31st March 1930.	Excluded during year 1st April 1929 to 31st March 1930.	On 31st March 1930.
(1)	(2)	(3)	(4)	(5)	(6)
SIXTH CIRCLE—*cont.*		ACS.	ACS.	ACS.	ACS.
Palghat—cont.					
Muthikolam bungalow compound.	Cultural operations 1921–22.	4	..	..	4
Palghat Range office compound.	Cultural operations, 1919–20.	1	..	..	1
Dhone Reserve	Do.	10	..	..	10
Elival teak plantation (old).	Do.	10	..	..	10
	Cultural operations, 1928–29.	21	..	..	21
	1929–30	..	33	..	33
	1930–31	..	..	..	..
Sappal experimental plots.	1928–29	5	..	..	5
	1929–30	..	13	..	13
	1930–31	..	..	..	..
Dhone 4-acre plot	1928–29	4	..	..	4
	1929–30	..	26	..	26
	1930–31	..	..	..	..
	1931–32	..	..	..	..
Experimental nursery of satin wood.	....	..	..	..	..
Evergreen nursery, Dhoni.	....	..	..	..	..
Nursery for coffee robusta.	....	..	..	..	..
Nursery Andaman Paduk.	....	..	..	..	..
Nursery Burma Paduk ..	1929–30	..	..	..	..
Regeneration in Silent Valley.	1928–29	..	..	..	..
Evergreen nursery ..	Do.	..	..	..	..
	Total ..	378	72	..	450
	Grand Total ..	10,135	256	22	10,369
	Parlakimedi Maliahs ..	202·87	14·40	..	216·27
	Grand Total, Presidency ..	26,902·17	1,756·22	320·9	28,336·49

during the year 1929-30—*cont.*

Expenditure during the year.		Total expenditure from commencement including expenditure on all failed areas.			Total area written off from start.	Expenditure in failed areas during the year.	Expenditure from commencement excluding failed areas.	Revenue during year.	Total revenue from date of creation.
Creation. (7)	Upkeep. (8)	Creation. (9)	Upkeep. (10)	Total. (11)	(12)	(13)	(14)	(15)	(16)
RS.	RS.	RS.	RS.	RS.	ACS.	RS.	RS.	RS.	RS.
..	..	110	..	110	..	..	110	..	..
..	..	50	53	103	..	..	103	..	..
..	..	2,794	1,514	4,308	115	3,964	344	..	..
..	16	..	139	139	..	..	139	..	..
..	86	343	86	429	..	..	429	..	..
467	..	677	..	677	..	..	677	..	..
139	..	170	..	170	..	..	170	..	..
..	4	103	4	107	..	..	107	..	..
222	..	386	..	386	..	..	386	..	..
863	..	863	..	863	..	..	863	..	..
..	12	50	12	62	..	..	62	..	..
490	..	625	..	625	..	..	625	..	..
296	..	296	..	296	..	..	296	..	..
30	..	30	..	30	..	..	30	..	..
..	13	13	13	26	..	..	26	..	..
..	..	30	..	30	..	..	30	..	..
..	..	12	..	12	..	..	12	..	..
..	..	18	..	18	..	..	18	..	..
7	..	7	..	7	..	..	7	..	..
598	..	674	..	674	..	..	674	..	..
..	..	48	..	48	..	..	48	..	..
3,112	330	11,610	16,915	28,525	474	14,603	13,922	..	..
5,571	3,427	5 6112	70,040	1,26,152	1,219	16,038	1,08,962	5,676	23,449
70	56	581-8-9	1,625-9-1	2,207	1	2	2,207	..	..
13,322	4,472	2,19,065-8-9	1,04,624-9-1	3,53,744	7,655-9	16,087	2,69,321	83,725	3,80,824

Annual Form No. 35.

Forest Department, Madras Presidency.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929–30 and agency of exploitation.

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
First Circle.															
I. Reserved Forests.															
Ganjam	..	62	35	1	98	1	38	..	..	39	..	..	..	..	..
Vizagapatam	4	..	..	..	4	1	7	1	..	9	..	..	..	..	..
Godavari, Upper ..	34	2	..	..	36	53	6	..	..	59	..	..	..	..	..
Do. Lower ..	1	15	..	..	16	1	..	..	..	1	..	..	..	..	..
Guntur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	39	79	35	1	154	56	51	1	..	108	..	..	..	..	..
II. Leased Forests—Nil.															
III. Reserved Lands—Nil.															
IV. Unreserved Lands.															
Ganjam	12	320	17	..	349	..	..	..	..	..	..	..	..	..	..
Vizagapatam	..	..	..	..	..	..	54	1	..	55	..	..	..	..	..
Godavari, Upper ..	7	4	..	..	11	4	18	2	..	24	..	..	..	..	..
Do. Lower ..	..	270	23	..	293	..	2	..	..	2	..	6	..	..	6
Guntur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	19	594	40	..	653	4	74	3	..	81	..	6	..	..	6
Grand Total ..	58	673	75	1	807	60	125	4	..	189	..	6	..	..	6

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929-30 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total.
	Government. (17)	Purchasers. (18)	Free grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free grantees. (29)	Right-holders. (30)	Total. (31)	(32)
FIRST CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Ganjam	..	..	..	..	..	1	100	35	1	137	16	307	55	..	378	515
Vizagapatam	..	..	..	..	..	5	7	1	..	13	..	119	..	..	119	132
Godavari, Upper ..	..	..	..	..	..	87	8	..	..	95	..	..	..	..	..	95
Do. Lower ..	..	..	..	..	..	2	15	..	..	17	25	890	73	..	988	1,005
Guntur	1	12	..	..	13	1	12	..	..	13	2	596	..	..	598	611
Nellore	..	..	..	..	..	..	..	..	..	..	..	555	..	..	555	555
Total ..	1	12	..	..	13	96	142	36	1	275	43	2,467	128	..	2,638	2,913
II. Leased Forests—Nil.																
III. Reserved Lands—Nil.																
IV. Unreserved Lands—cont.																
Ganjam	..	..	..	..	..	12	320	17	..	349	..	97	..	..	97	446
Vizagapatam	..	..	..	..	..	..	54	1	..	55	..	73	..	..	73	128
Godavari, Upper ..	1	..	..	..	1	12	22	2	..	36	6	59	..	..	65	101
Do. Lower ..	..	..	..	..	..	..	278	23	..	301	..	67	..	..	67	368
Guntur	..	30	15	..	45	..	30	15	..	45	..	196	..	..	196	241
Nellore	..	17	18	..	35	..	17	18	..	35	..	122	..	..	122	157
Total ..	1	47	33	..	81	24	721	76	..	821	6	614	..	..	620	1,441
Grand Total ..	2	59	33	..	94	120	863	112	1	1,096	49	3,081	128	..	3,258	4,354

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929-30 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
SECOND CIRCLE.															
I. Reserved Forests.															
Anantapur	..	35	1	..	36	..	..	..	..	..	..	..	..	..	..
Kurnool, East ..	2	4	..	..	6	5	5	1	..	11	2	..	..	..	2
Do. South ..	28	61	..	..	89	7	52	2	..	61	1	..	..	..	1
Do. West ..	2	24	..	..	26	2	19	4	..	25	4	65	..	..	69
Cuddapah, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	32	124	1	..	157	14	76	7	..	97	(*a*) 7	65	..	..	72
II. Leased Forests—Nil.															
III. Reserved Lands—Nil.															
IV. Unreserved Lands.															
Anantapur	..	226	5	..	231	..	..	..	..	..	..	..	..	..	..
Kurnool, East ..	..	5	1	..	6	..	..	1	..	1	..	..	..	..	..
Do. South ..	..	7	..	..	7	..	..	..	..	..	..	..	..	..	..
Do. West ..	..	49	..	..	49	..	..	..	..	..	..	..	..	..	..
Cuddapah, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	287	6	..	293	..	..	1	..	..	..	..	..	..	..
Grand Total ..	32	411	7	..	450	14	76	8	..	98	7	65	..	..	72

(*a*) Represents quantities of square timber.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929–30 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government. (17)	Purchasers. (18)	Free grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free grantees. (29)	Right-holders. (30)	Total. (31)	(32)
SECOND CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Anantapur	..	..	..	..	..	..	35	1	..	36	8	260	..	..	268	304 *
Kurnool, East ..	1	..	..	..	1	10	9	1	..	20	..	43	..	..	43	63 *
Do. South ..	..	..	..	..	..	36	113	2	..	151	6	447	..	..	453	604 *
Do. East ..	..	..	..	..	..	8	108	4	..	120	132	1,724	1	..	1,857	1,977 *
Cuddapah, North ..	1	27	8	..	36	1	27	8	..	36	47	1,896	..	..	1,943	1,979 *
Do. South ..	2	37	5	..	44	2	37	5	..	44	131	3,845	..	..	3,976	4,020 *
Total ..	4	64	13	..	81	57	329	21	..	407	324	8,215	1	..	8,540	8,947
II. Leased Forests—Nil.																
III. Reserved Lands—Nil.																
IV. Unreserved Lands—cont.																
Anantapur	..	..	..	..	..	..	226	5	..	231	..	105	..	..	105	336 †
Kurnool, East ..	..	..	..	..	..	..	5	2	..	7	..	4	..	..	4	11 †
Do. South ..	..	..	..	..	..	..	7	..	..	7	..	13	..	..	13	20 †
Do. West ..	..	..	..	..	..	..	49	..	..	49	..	73	..	..	73	122 †
Cuddapah, North ..	..	3	..	..	3	..	3	..	..	3	..	16	..	..	16	19 †
Do. South ..	..	7	..	..	7	..	7	..	..	7	..	19	..	..	19	26 †
Total ..	..	10	..	..	10	..	297	7	..	304	..	230	..	..	230	534
Grand Total ..	4	74	13	..	91	57	626	28	..	711	324	8,445	1	..	8,770	9,481

* Actuals.

† Estimates based on Revenue collected by Tahsildars. Timber Rs. 2-8-0 per cart-load of 20 cubic feet and fuel at Rs. 1-4-0 per cart-load of 20 cubic feet.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929–30 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
FOURTH CIRCLE.															
I. Reserved Forests.															
Chittoor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vellore	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..
Salem, North ..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Do. Central ..	(*a*) 1	10	..	..	12	..	..	..	..	..	..	..	..	..	..
Do. South ..	(*b*) 1	..	..	..	1	..	..	..	..	..	1	..	..	..	1
Total ..	5	10	..	..	15	..	..	..	..	..	(*c*) 2	..	..	..	2
II. Leased Forests —Nil.															
III. Reserved Lands —Nil.															
IV. Unreserved Lands.															
Chittoor	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vellore	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Salem, North ..	..	..	..	..	..	..	78	..	..	78	..	..	..	..	..
Do. Central ..	..	..	4	..	4	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	..	..	4	..	4	..	78	..	..	78	..	..	..	..	..
Grand Total ..	5	10	4	..	19	..	78	..	..	78	2	..	..	..	2

(*a*) Denotes sandalwood. (*b*) Timber 703 cubic feet, sandalwood 617 cubic feet. (*c*) Represents quantities of logs from which sawn timber was obtained.

(1) *Sandalwood.*—Factor of conversion two quarters = One cubic foot.

(2) *Government Agency.*—Estimates based on actuals.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929–30 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government. (17)	Purchasers. (18)	Free grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free grantess. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free grantees. (29)	Right-holders. (30)	Total. (31)	(32)
FOURTH CIRCLE—*cont.*																
I. Reserved Forests —cont.																
Chittoor	2	5	2	..	9	2	5	2	..	9	12	839	..	..	851	860
Vellore	(*a*) 6	2	..	..	8	8	2	..	..	10	48	556	..	..	604	614
Salem, North ..	(*a*) 5	..	..	..	5	6	..	..	..	6	..	16	..	..	16	22
Do. Central ..	..	..	..	..	..	2	10	..	..	12	1	240	..	..	241	253
Do. South ..	..	..	1	..	1	2	..	1	..	3	10	72	..	..	82	85
Total ..	13	7	3	..	23	20	17	3	..	40	71	1,723	..	..	1,794	1,834
II. Leased Forests—Nil.																
III. Reserved Lands—Nil.																
IV. Unreserved Lands—cont.																
Chittoor	..	38	7	..	45	..	38	7	..	45	..	30	..	..	30	75
Vellore	..	178	6	..	184	..	178	6	..	184	..	295	..	..	295	479
Salem, North ..	(*a*) 2	..	..	..	2	2	78	..	..	80	..	12	..	..	12	92
Do. Central ..	..	141	..	..	141	..	141	4	..	145	..	68	..	..	68	213
Do. South ..	..	156	4	..	160	..	156	4	..	160	..	93	..	..	93	253
Total ..	2	513	17	..	532	2	591	21	..	614	..	498	..	..	498	1,112
Grand Total ..	15	520	20	..	555	22	608	24	..	654	71	2,221	..	..	2,292	2,946

(*a*) Denotes Sandalwood.

(3) *Reserves—Purchasers—Timber and fuel.*
Chittoor, Vellore and South Salem.
Estimates based on contractors' accounts—
North and Central Salem.—Estimates based on revenue collected.
Timber 2 annas per cubic foot and fuel 1¾ annas per cubic foot.
Unreserves—Purchasers.—Estimates based on revenue collected.
Chittoor 3 annas per cubic foot. Fuel and wind-fallen tree, one anna per cubic foot.
Vellore.—Timber—Two annas per cubic foot.
Fuel —One anna do. do.
North and Central Salem—Timber—Two annas per cubic foot.
Fuel—One and three-quarter annas per cubic foot.

Estimate based on contractors' accounts—*cont.*
South Salem—Timber—Four annas per cubic foot.
Fuel and dead trees—One anna per cubic foot.

Free grants.
Palmyrah trees.
Chittoor and Central Salem.—Twenty cubic feet per tree.
Vellore—Ten cubic feet per tree.
South Salem—Five hundred and forty-four trees—Seven cubic feet per tree.
Four trees—Ten cubic feet per tree.
Other timber based on seigniorage rates.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929-30 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free grantees.	Right holders.	Total.	Government.	Purchasers.	Free grantees	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
FIFTH CIRCLE.															
I. Reserved Forests.															
Kollegal	5	2	..	..	7	..	..	..	..	..	..	2	..	..	2
Coimbatore, North ..	6	4	..	..	10	..	..	..	..	..	8	..	..	..	8
Do. South ..	4	..	..	..	4	..	..	..	..	..	(*c*) 62	..	..	..	62
Madura	1	..	..	..	1	1	..	..	..	1	..	..	..	..	..
Tinnevelly	1	57	..	..	58	2	2	..	..	4	4	14	..	..	18
Total ..	17	63	..	..	80	3	2	..	..	5	74	16	..	..	90
II. Leased Forests.															
Coimbatore, South ..	(*a*) 82	..	..	..	82	..	..	..	..	..	(*b*) 27	..	..	..	27
III. Reserved Lands. Nil.															
IV. Unreserved Lands.															
Kollegal	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Coimbatore, North ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Madura	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tinnevelly	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Total ..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Grand Total ..	99	64	..	..	163	3	2	..	..	5	101	16	..	..	117

(*a*) Excludes 39,000 c.ft. transferred to mill and sawn.
(*b*) Includes net outturn of 19,000 c.ft. of sawn timber from 39,000 c.ft. sent to the mill for sawing.
Do. : 8,000 c.ft at the felling area.
(*c*) Represents outturn of sleepers, scantlings from Valparai sleeper project.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929-30 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	
	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)
FIFTH CIRCLE—*cont.*		C. FT.	C. FT.		C. FT.	C. FT.	C. FT.	C. FT.		C. FT.	C. FT.	C. FT.			C. FT.	C. FT.
I. Reserved Forests—cont.																
Kollegal	..	6	..	..	6	5	10	..	..	15	..	383	..	..	383	398
Coimbatore, North ..	..	..	..	..	..	14	4	..	..	18	24	864	..	..	888	906
Do. South ..	..	4	..	..	4	66	4	..	..	70	17	168	..	..	185	255
Madura	..	2	..	..	2	2	2	..	..	4	48	903	..	..	951	955
Tinnevelly	..	6	..	..	6	7	79	..	..	86	8	674	..	..	682	768
Total ..	..	18	..	..	18	94	99	..	..	193	97	2,992	..	..	3,089	3,282
II. Leased Forest—cont.																
Coimbatore, South ..	4	..	..	..	4	113	..	..	..	113	..	..	..	..	..	113
III. Reserved Lands—Nil.																
IV. Unreserved Land—cont.																
Kollegal	..	19	..	..	19	..	19	..	..	19	..	6	..	..	6	25
Coimbatore, North ..	..	50	1	..	51	..	50	1	..	51	..	44	..	..	44	95
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	11	..	..	11	11
Madura	..	156	22	Nil.	178	..	156	22	..	178	..	197	..	..	197	375
Tinnevelly	..	..	5	Nil.	5	..	1	5	..	6	..	68	..	..	68	74
Total ..	..	225	28	Nil.	253	..	226	28	..	254	..	326	..	..	326	580
Grand Total ..	4	243	28	..	275	207	325	28	..	560	97	3,318	..	..	3,415	3,975

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929–30 and agency of exploitation—*cont.*

Division.	Timber in the rough, logs.					Timber in the rough, poles.					Sawn or square timber.				
	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free grantees.	Right-holders.	Total.	Government.	Purchasers.	Free-grantees.	Right-holders.	Total.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
SIXTH CIRCLE.															
I. Reserved Forests.															
Mangalore, North ..	50	..	..	..	50	1	..	..	..	1	..	..	..	..	..
Do. South ..	178	6	..	..	184	6	..	..	..	6	..	..	..	..	..
Wynaad	119	12	..	..	131	4	..	..	..	4	236	..	..	..	236
Nilambur	137	..	..	..	137	71	..	..	..	71	..	..	..	..	..
The Nilgiris	40	1	..	..	41	..	..	..	..	..	..	..	..	..	..
Palghat*	317	91	..	..	408	..	1	..	..	1	..	..	..	..	..
Total ..	841	110	..	..	951	82	1	..	..	83	236	..	..	..	236
II. Leased Forests.															
Nilambur	215	26	..	..	241	98	..	..	..	98	..	2	..	..	2
III. Reserved Lands—Nil.															
IV. Unreserved Lands															
Mangalore, North ..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Do. South ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Wynaad	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Nilambur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..
Palghat	..	9	..	..	9	..	..	..	..	..	..	..	..	..	..
Total ..	1	10	..	..	11	..	..	..	..	..	..	..	..	..	..
Grand Total ..	1,057	146	..	..	1,203	180	1	..	..	181	236	2	..	..	238
Total, Presidency Reserves.	934	386	36	1	1,357	155	130	8	..	293	319	81	..	..	400
Leased forests ..	297	26	..	..	323	98	..	..	..	98	27	2	..	..	29
Unreserved lands ..	20	892	50	..	962	4	152	4	..	160	..	6	..	..	6
Total ..	1,251	1,304	86	1	2,642	257	282	12	..	551	346	89	..	..	435

* NOTE.—Includes Chenat Nair exploitation figures which are timber (logs) 1,20,000 c. ft. of timber and 1,10,000 c. ft. of fuel under Government Agency.

Outturn (in thousands of cubic feet, solid) of timber and fuel during the year 1929-30 and agency of exploitation—*cont.*

Division.	Miscellaneous.					Total timber.					Fuel.					Total outturn.
	Government. (17)	Purchasers. (18)	Free grantees. (19)	Right-holders. (20)	Total. (21)	Government. (22)	Purchasers. (23)	Free grantees. (24)	Right-holders. (25)	Total. (26)	Government. (27)	Purchasers. (28)	Free grantees. (29)	Right-holders. (30)	Total. (31)	(32)
SIXTH CIRCLE—*cont.*																
I. Reserved Forests—cont.																
Mangalore, North ..	..	6	..	..	6	51	6	..	..	57	16	552	..	..	568	625
Do. South ..	..	4	..	..	4	184	10	..	..	194	8	190	..	..	198	392
Wynaad	..	..	..	..	..	359	12	..	..	371	..	..	..	..	..	371
Nilambur	..	..	..	..	..	208	..	..	..	208	1	3	..	..	4	212
The Nilgiris	..	..	..	..	..	40	1	..	..	41	500	85	..	..	585	626
Palghat	..	..	..	..	..	317	92	..	..	409	110	640	..	..	640	1,049
Total ..	..	10	..	..	10	1,159	121	..	..	1,280	635	1,470	..	..	1,995	3,275
II. Leased Forests—cont.																
Nilambur	1	..	..	..	1	314	28	..	..	342	40	..	..	..	40	382
III. Reserved Lands—Nil.																
IV. Unreserved Lands—cont.																
Mangalore, North ..	..	24	..	15	39	1	24	..	15	40	..	76	..	6	82	122
Do. South ..	..	37	..	2	39	..	37	..	2	39	..	24	..	..	24	63
Wynaad	..	10	..	..	10	..	10	..	..	10	..	28	..	..	28	38
Nilambur	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
The Nilgiris	..	..	..	..	..	..	1	..	..	1	..	16	..	..	16	17
Palghat	..	..	3	..	3	..	9	3	..	12	..	61	..	..	61	73
Total ..	..	71	3	17	91	1	81	3	17	102	..	205	..	6	211	313
Grand Total ..	1	81	3	17	102	1,474	230	3	17	1,724	675	1,675	..	6	2,246	3,970
Total, Presidency Reserves.	18	111	16	..	145	1,426	708	60	1	2,195	1,170	16,067	129	..	17,366	19,561
Leased Forest ..	5	..	..	..	5	427	28	..	..	455	40	..	..	..	40	495
Unreserved lands ..	3	866	81	17	967	27	1,916	135	17	2,095	6	1,873	..	6	1,885	3,980
Total ..	26	977	97	17	1,117	1,880	2,652	195	18	4,745	1,216	17,940	129	6	19,291	24,036
																(*a*) + 101
																(*b*) 24,137

(*a*) Added to represent the log equivalent of sawn timber in the Fifth Circle.

(*b*) The total outturn excludes the figures for Parlakimedi Maliahs (i.e., 38 c.ft. of timber and 143 c.ft. of fuel).

ANNUAL FORM No. 36.

Forest Department, Madras Presidency.

Outturn of minor forest produce during the year 1929-30.

Circle.	Description of produce.	Value of produce removed or utilized.				
		By Government agency.	By purchasers.	By free grantees.	By right-holders.	Total.
		Value.	Value.	Value.	Value.	Value.
First Circle.	*Reserved forests.*	RS.	RS.	RS.	RS.	RS.
	Bamboos	313	82,693	787	..	83,793
	Grazing	..	1,13,689	13,998	1,418	1,29,099
	Other produce.					
	Grass (hay, thatch, etc.) ..	112	1,535	..	..	1,647
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi, etc. ..	11,730	3,602	..	..	15,332
	Horns, skins, wax, resin, gum, honey, etc.	..	413	..	..	413
	Tangedu, etc., barks and fibres, sarasaparilla, etc.	534	6,932	..	..	7,466
	Date and palmyra leaves, stalks, modugu, etc., leaves.	1,764	82	..	..	1,846
	Manure leaves, thorns, etc. ..	..	971	..	..	971
	Stone, gravel, etc.	..	488	..	..	488
	Tree owners fees	..	1,766	..	..	1,766
	Lease of shandies	..	7,082	..	..	7,082
	Miscellaneous	..	1,752	..	..	1,752
	Total, other produce ..	14,140	24,623	..	..	38,763
	Total, Reserved forests ..	14,453	2,21,005	14,785	1,418	2,51,655
	Reserved lands.					
	Bamboos	..	71,613	..	..	71,613
	Other produce.					
	Grass (hay, thatch, etc.) ..	..	147	..	..	147
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi, etc.	..	38,897	..	..	38,897
	Horns, skins, wax, resin, gum, honey, etc.	..	326	..	..	326
	Tangedu, etc., barks and fibres, sarasaparilla, etc.	..	31	..	..	31
	Total, other produce ..	..	39,401	..	..	39,401
	Total, Reserved lands ..	..	1,11,014	..	..	1,11,014
	Unreserves.					
	Bamboos	74	10,883	126	..	11,083

Outturn of minor forest produce during the year 1929-30—*cont.*

Circle.	Description of produce.	Produce removed or utilized. By Government agency.	By purchasers.	By free grantees.	By right-holders.	Total.
		Value.	Value.	Value.	Value.	Value.
First Circle—*cont.*	*Other produce.*	Rs.	Rs.	Rs.	Rs.	Rs.
	Grass (hay, thatch, etc.) ..	15	214	..	..	229
	Tamarind, soapnuts, galnuts, nux-vomica, shekoi, etc.	123	2,759	..	..	2,882
	Horns, skins, wax, gum, resin, honey, etc.	..	10	..	..	10
	Tangedu, etc., barks and fibres, sarasaparilla, etc.	29	2,215	..	..	2,244
	Date and palmyra leaves, stalks and modugu, etc., leaves.	..	1,528	1,176	..	2,704
	Stone, gravel, etc.	..	1,503	..	..	1,503
	Tree owners fees	..	5,504	..	..	5,504
	Lease of shandies	..	284	..	..	284
	Miscellaneous	..	39,042	..	..	39,042
	Total, other produce ..	167	53,059	1,176	..	54,402
	Total, unclassed forests ..	241	63,942	1,302	..	65,485
	Abstract.					
	Bamboos	387	1,65,189	913	..	1,66,489
	Grazing	..	1,13,689	13,998	1,418	1,29,105
	Other minor forest produce ..	14,307	1,17,083	1,176	..	1,32,566
	Total ..	14,694	3,95,961	16,087	1,418	4,28,160
Second Circle, Bellary.	*Reserves.*					
	Bamboos	347	72,967	405	..	73,719
	Grazing	..	1,65,067	..	3,853	1,68,920
	Fodder grass	..	6,235	..	..	6,235
	Penning fees	..	4,689	..	..	4,689
	Total, Grazing fees ..	..	1,75,991	..	3,853	1,79,844
	Minor forest produce.					
	Grass (hay, thatch, etc.) ..	64	506	8	..	578
	Tamarind, soapnuts and nux-vomica.	..	4,523	..	..	4,523
	Stone, gravel and earth ..	..	7,318	..	..	7,318
	Date, palmyra and plate leaves..	20	1,717	..	..	1,737
	Manure leaves, bat's dung and thorns.	..	4,220	20	..	4,240
	Tumki leaves	..	14,010	..	..	14,010
	Horns, honey, wax, resin, gums and galnuts.		3,031	..	..	3,031
	Tangedu, rela, yepi and seeds..	50	12,401	..	..	12,451
	Miscellaneous including tree-tapping fees and amaroy.	..	3,886	..	..	3,886
	Total of minor forest produce.	134	51,612	28	..	51,774
	Grand Total of grazing and minor forest produce of reserves.	134	2,27,603	28	3,853	2,31,618

Outturn of minor forest produce during the year 1929-30—*cont.*

Circle.	Description of produce.	Produce removed or utilized. By Government agency. Value.	By purchasers. Value.	By free grantees. Value.	By right-holders. Value.	Total. Value.
	Unreserves.	RS.	RS.	RS.	RS.	RS.
Second Circle—*cont.*	Bamboos	..	2	20	..	22
	Minor forest produce.					
	Thatch grass and palmyra leaves..	..	..	23	..	23
	Tamarind, soapnuts and nux-vomica.	..	38,747	..	..	38,747
	Stone, gravel and earth ..	..	1,486	..	..	1,486
	Date, palmyra and plate leaves.	..	52	..	..	52
	Manure leaves, bats' dung and thorns.	..	654	..	..	654
	Tangedu, rela, yepi and seeds ..	..	1,68,246	..	..	1,68,246
	Tumki leaves	..	6,734	..	..	6,734
	Miscellaneous, including tree tapping fees and amaroy.	..	1,16,600	..	..	1,16,600
	Total of minor forest produce and unreserves.	..	3,32,519	23	..	3,32,542
	Grand total of bamboos of reserves and unreserves.	347	72,969	425	..	73,741
	Grand total of grazing and minor forest produce of reserves and unreserves.	134	5,60,122	51	3,853	5,64,160
Fourth Circle.	Bamboos	5	1,46,509	359	..	1,46,873
	Grass and grazing	..	1,99,220	..	132	1,99,352
	Thatch grass	..	243	..	..	243
	Tangedu, konnai and avaram bark.	..	14,705	..	..	14,705
	Date, palmyra, tooki and plate leaves.	..	510	242	..	752
	Manure leaves	..	11,073	..	..	11,073
	Stone, gravel, sand, etc. ..	..	5,350	..	..	5,350
	Tamarind, nux-vomica	17	30,065	..	..	30,082
	Soapnuts, galnuts	..	..	..	..	..
	Tree owners' fees	..	20,037	..	..	20,037
	Other items of minor forest produce.	351	53,164	..	..	53,515
	Total ..	368	1,37,147	242	..	1,37,757
	Grand Total ..	373	4,82,876	601	132	4,83,982
	Reserved forests.					
Fifth Circle.	Bamboos	9	* 36,215	..	..	36,224
	Grazing	..	1,22,656	..	1,689	1,24,345
	Fodder grass	..	1,596	..	..	1,596
	Total ..	..	1,24,252	..	1,689	1,25,941

* Includes Rs. 1,500 relating to Mount Stuart Working Circle.

Outturn of minor forest produce during the year 1929-30—*cont.*

Circle.	Description of produce.	Produce removed or utilized. By Government agency.	By purchasers.	By free grantees.	By right-holders.	Total.
		Value.	Value.	Value.	Value.	Value.
Fifth Circle—*cont.*	*Other produce.*	RS.	RS.	RS.	RS.	RS.
	Grass (thatch, acha fibre and creeper).	37	161	..	..	198
	Dammar, turmeric, pepper, cardamoms, etc.	..	24,844	..	..	24,844
	Tamarind, galnuts, soapnuts, shekoi.	..	21,767	..	..	21,767
	Avaram, konnai, sandal seeds ..	36	11,685	..	..	11,721
	Date leaves, Kaya leaves, palmyra and manure leaves.	..	8,231	..	612	8,843
	Trees, stones, lime stone, mud, etc.	..	701	..	..	701
	Deer horns, honey, elephant tusks, etc.	1,199	1,091	..	..	2,290
	Miscellaneous	..	3,490	..	..	3,490
	Total ..	1,272	71,970	..	612	73,854
	Unreserved lands.					
	Bamboos	..	2	14	..	16
	Other produce.					
	Avaram, Myrabolam, Amaroy, etc.	..	13,066	..	..	13,066
	Grass (thatch, korai, etc.) ..	..	901	..	..	901
	Sivajama tree tax and fees on trees, stones, etc.	..	13,371	97	..	13,468
	Shekoi and pungam seeds ..	..	850	..	..	850
	Date leaves, palmyra leaves, kaya leaves, etc.	..	17,886	..	..	17,886
	Miscellaneous	..	21	..	..	21
	Total ..	..	46,095	97	..	46,192
	Abstract.					
	Bamboos	9	36,217	14	..	36,240
	Grazing and fodder grass ..	..	1,24,252	..	1,689	1,25,941
	Other produce	1,272	1,18,065	97	612	1,20,046
	Total ..	1,281	2,78,534	111	2,301	2,82,227
	Reserved forests.					
Sixth Circle.	Bamboos	7,053	16,311	13	..	23,377
	Grazing and fodder grass ..	234	30,806	298	..	31,338
	Other produce.					
	Catechu	..	4,848	..	..	4,848
	Stones, gravel, etc.	..	120	575	..	695
	Canes	6	309	2	..	317
	Wood oil	..	526	..	..	526
	Coconuts	..	3,829	..	..	3,829
	Hopea bark	3,908	..	..	..	3,908
	Other items, including tusks, etc.	717	23,567	..	..	24,284
	Total ..	4,631	33,199	577	..	38,407
	Total, Reserves ..	11,918	80,316	888	..	93,122

Outturn of minor forest produce during the year 1929-30—*cont.*

Circle.	Description of produce.	Produce removed or utilized.				
		By Government agency.	By purchasers.	By free grantees.	By right-holders.	Total.
		Value.	Value.	Value.	Value.	Value.
Sixth Circle—*cont.*	*Reserved lands.*					
	Bamboos	Rs. 32	Rs. 178	Rs. 3	..	Rs. 213
	Grazing and fodder grass ..	..	..	202	..	202
	Total, Reserved lands ..	32	178	205	..	415
	Leased forests.					
	Bamboos	3,683	3	.	..	3,686
	Other minor produce	49	230	..	..	279
	Total, Leased forests ..	3,732	233	..	..	3,965
	Unreserved lands.					
	Bamboos	.	62	..	..	62
	Other produce.					
	Stones, gravel, etc.	..	1,370	..	..	1,370
	Other items	.	8,053	..	..	8,053
	Total ..	..	9,423	..	..	9,423
	Total, Unreserved lands ..	..	9,485	..	..	9,485
	Abstract for the Sixth Circle.					
	Bamboos	10,768	16,554	16	..	27,338
	Grazing and fodder grass ..	234	30,806	500	..	31,540
	Other produce	4,680	42,852	577	..	48,109
	Grand total ..	15,682	90,212	1,093	..	1,01,987
Parlakimedi Maliahs.	Bamboos	4,565	122	397	..	5,091
	Grazing	1,401	..	..	..	1,401
	Minor produce	28,705	36	56	..	29,244
	Total ..	34,671	158	453	..	35,736
Total, Presidency.	*Reserved forests.*					
	Bamboos	3,54,698	1,564	..	..	3,67,672
	Grazing	6,43,958	14,286	7,092	..	6,65,570
	Minor produce	3,18,781	847	612	..	3,40,834
	Reserved lands.					
	Bamboos	76,356	125	397	..	76,917
	Grazing	1,401	202	..	..	1,603
	Minor produce	68,106	36	56	..	68,645

Outturn of minor forest produce during the year 1929-30—*cont.*

Circle.	Description of produce.	Produce removed or utilized.				
		By Government agency.	By purchasers.	By free grantees.	By right holders.	Total.
		Value.	Value.	Value.	Value.	Value.
Grand total, Total, Presidency—*cont.*	*Unreserved lands.*	Rs.	Rs.	Rs.	Rs.	Rs.
	Bamboos	74	10,949	160	..	11,183
	Grazing	..	..	..	..	..
	Minor produce	167	4,41,096	1,296	..	4,42,559
	Bamboos	11,523	4,42,003	1,849	397	4,55,772
	Grazing	423	6,45,359	14,488	7,092	6,67,173
	Minor produce	21,208	8,27,983	2,179	668	8,52,038
	Total ..	32,965	19,15,345	18,516	8,157	19,74,983

Annual Form No. 37.

Forest Department, Madras Presidency.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, or otherwise disposed of, during 1929–30.

Name of district.	Balance at commencement of the year in the forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
TIMBER (IN THOUSANDS OF CUBIC FEET).					
First Circle.					
Ganjam	147	20	167	(a) 120 (b) 1 (c) 15	31
Vizagapatam	2	5	7	(a) 7	..
Godavari, Upper	66	98	164	(a) 80 (b) 27	57
Do. Lower	..	2	2	(a) 1	1
Guntur	..	1	1	(b) 1	..
Nellore	1	..	1	..	1
Total	216	126	342	252	90
Second Circle.					
Anantapur	..	..	..	..	..
Kurnool, East	1	10	11	(a) 10 (b) 1	Nil.
Do. South	1	36	37	(a) 36	1
Do West	11	8	19	(a) 13 (b) & (c) 2	4
Cuddapah, North	1	1	2	(a) & (b) 1	1
Do. South	..	2	2	(a) & (b) 2	..
Total	14	57	71	65	6
Fourth Circle.					
Chittoor	..	2	2	2	..
Vellore	1	(a) 18	19	(b) 18	1
Salem, North	1	8	9	8	1
Do. Central	..	2	2	2	..
Do. South	..	2	2	1	1
Total	2	32	34	31	3

Note for the First Circle.—(a) Sold departmentally. (b) Used departmentally.
(c) Written off.

Note for the Second Circle.—(a) Sold departmentally. (b) Used departmentally.
(c) Written off.

Note for the Fourth Circle.—(a) Includes 10,000 cubic feet of sandalwood from other divisions.
(b) 16,000 cubic feet sold, 1,000 cubic feet utilized and 1,000 cubic feet deficit.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1929-30—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
TIMBER (IN THOUSANDS OF CUBIC FEET)—*cont.*					
Fifth Circle.					
Kollegal	..	5	5	5	..
Coimbatore, North	1	18	19	17	2
Do. South—					
Non-commercial area	29	4	33	19	14
Commercial	(*e*) 77	133	210	(*a*) 128	(*e*) 82
Topslip Saw Mill (logs)	5	40	45	45	..
Topslip (Scantlings)	(*b*) ..	19	19	19	(*c*) ..
Valparai (Scantlings)	..	2	2	2	..
Madura	1	2	3	2	1
Tinnevelly	2	7	9	4	5
Total	115	230	345	241	104
SLEEPERS (IN NUMBER).					
Coimbatore, South—					
Valparai, B.G.	1,752	(*f*) 17,757	19,509	(*g*) 15,849	3,660
Do. M.G.	173	1,073	1,246	1,246	..
Sixth Circle.					
Mangalore, North	55	51	106	(*a*) 48 (*b*) 3	55
Do. South	120	(*h*) 260	380	(*a*) 81 (*b*) 4 (*c*) 2 (*d*) 53 (*e*) 31	(*h*) 209
Wynaad	99	(*h*) 415	514	(*a*) 178 (*b*) 6 (*c*) 15 (*d*) 59 (*e*) 35 (*f*) 9	(*h*) 212
Nilambur	390 (*g*) 58	(*h*) 883	1,331	(*h*) 686	645
The Nilgiris	72	40	112	(*a*) 76 (*c*) 11	25
Palghat	11 (*g*) 37	(*h*) 113	161	(*a*) 105 (*c*) 47	(*h*) 9
Total	747 95	1,762	2,604	1,449	1,155
Chenat Nair Exploitation figures.	86	312	398	383	15
Parlakimedi Maliahs	1	2	3	3	..
Grand total, Presidency	1,198	2,268	3,466	2,108	1,358

Note for the Fifth Circle.

(*a*) Of this quantity, 39,115 cubic feet were despatched to Saw Mill and the net outturn of sawn material is 18,908 cubic feet accounted for against Topslip scantlings. (*b*) Two hundred and eighty-two cubic feet which is less than 1,000 cubic feet has been shown as nil. (*c*) One hundred and ninety-two cubic feet which is less than 1,000 cubic feet has been shown as nil. (*e*) Includes 603 cubic feet of timber being the balance with Messrs. Howard Brothers. (*f*) Out of this, 811 sleepers were obtained after the district took over charge of the project. (*g*) Out of this, three sleepers relate to the loss sustained by the Anamalai Ropeway Company during transit.

Note for the Sixth Circle.

(*a*) Sales, etc. (*b*) Used departmentally. (*c*) Written off. (*d*) Supplied to Sawmills. (*e*) Supplied to depots in charge of Forest Utilization officer. (*f*) Timber despatched for foreign sales, etc. (*g*) Stock pertaining to Beypore, and Olavakkot depots omitted in the previous year's return. (*h*) Includes stock in depots in charge of Forest Utilization officer.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1929-30—*cont.*

Name of district.	Balance at commencement of the year in forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
		FUEL (IN THOUSANDS OF CUBIC FEET).			
First Circle.					
Ganjam	14	16	30	(*a*) 25	5
Godavari, Upper	..	6	6	(*a*) 6	..
Do. Lower	14	25	39	(*a*) 21 (*b*) 1	17
Guntur	2	2	4	(*a*) 2	2
Total ..	30	49	79	55	24
Second Circle.					
Anantapur	..	8	8	(*a*) 2	6
Kurnool, East	..	..	..	..	..
Do. South	3	6	9	(*a*) 6	3
Do. West	96	132	228	(*a*) 137 (*c*) 5	86
Cuddapah, North	12	47	59	(*a*) 20	39
Do. South	..	131	131	(*a*) 128	3
Total ..	111	324	435	298	137
Fourth Circle.					
Chittoor	9	12	21	11	10
Vellore	47	48	95	51	44
Salem, North	..	..	..	..	..
Do. Central	6	1	7	7	..
Do South..	11	10	21	14	7
Total ..	73	71	144	83	61
Fifth Circle.					
Coimbatore, North.. ..	..	23	23	23	..
Do. South	..	17	17	17	..
Madura	6	49	55	54	1
Tinnevelly	11	9	20	13	7
Total ..	17	98	115	107	8
Sixth Circle.					
Mangalore, North	41	16	57	33	24
Nilambur	..	41	41	3	38
The Nilgiris..	230	500	730	541	189
Total ..	271	557	828	577	251
Chenat Nair exploitation figures.	24	238	262	262	..
Pariakimedi Maliahs ..	22	79	101	72	29
Grand total, Presidency ..	541	1,288	1,829	1,319	510

(*a*) Sold departmentally.
(*b*) Used departmentally.
(*c*) Written off.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1929-30—*cont.*

Name of district.	Balance at commencement of the year in the forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
BAMBOOS (IN NUMBER).					
First Circle.					
Ganjam	..	7,830	7,830	(*b*) 7,830	..
Vizagapatam	..	500	500	(*b*) 500	..
Godavari, Upper	250	18,310	18,560	(*a*) 18,560	..
Do. Lower	20	4,789	4,809	(*a*) 4,509 (*b*) 300	..
Total	270	31,429	31,699	31,699	..
Second Circle.					
Anantapur	..	..	..	..	..
Kurnool, East	870	21,837	22,707	(*a*) 21,820 (*b*) 887	..
Kurnool, South	..	335	335	(*b*) 335	..
Kurnool, West	..	12,470	12,470	(*a*) 10,014 (*b*) 1,802	654
Cuddapah, North	..	160	160	(*b*) 160	..
Cuddapah, South	..	191	191	(*b*) 191	..
Total	870	34,993	35,863	35,209	654
Fourth Circle.					
Chittoor	..	30	30	30	..
Fifth Circle.					
Coimbatore, North	..	2,781	2,781	2,781	..
Sixth Circle.					
Wynaad	370	22,176	22,546	(*a*) 67 (*b*) 21,323	1,156
Nilambur	13,326	1,99,453 *	* 2,12,779	2,05,014	7,765
Palghat	..	1,413	1,413	1,390	23
Total	13,696	2,23,042	2,36,738	2,27,794	8,944
Parlakimedi Maliahs	..	400	400	..	400
Grand total, Presidency	14,836	2,92,675	3,07,511	2,97,513	9,998
MINOR FOREST PRODUCE (IN QUARTERS OF 28 LB.)					
First Circle.					
Ganjam	..	1,710	1,710	(*b*) 1,710	..
Vizagapatam	43	129	172	(*a*) 79 (*b*) 7	86
Godavari, Upper	1,577	47,218	48,795	(*b*) 47,519 (*c*) 526	750
Do. Lower	36	104	140	(*a*) 66 (*b*) 45	29
Guntur	..	347	347	(*a*) 120 (*b*) 194	33
Nellore	2,671	7,754	10,425	(*a*) 10,113 (*c*) 22	290
Total	4,327	57,262	61,589	60,401	1,188

Note for the First Circle.—(*a*) Sold departmentally.
(*b*) Used departmentally.
(*c*) Written off.

Note for the Second Circle.—(*a*) Sold departmentally.
(*b*) Used departmentally.

Note for the Sixth Circle.—(*a*) Sold departmentally.
(*b*) Used departmentally.

* Includes 62,598 bamboos purchased from private forests.

Account of timber, fuel, bamboos and minor produce cut or collected by Government Agency and brought to depot, sold locally or otherwise disposed of during 1929-30—*cont.*

Name of district.	Balance at commencement of the year in the forest and sale depots.	Received during the year.	Total.	Disposed of during the year.	Balance in hand at close of the year in forest and sale depots.
MINOR FOREST PRODUCE (IN QUARTERS OF 28 LB.)—*cont.*					
Second Circle.					
Anantapur	27	34	61	(a) 45 (c) 1	15
Kurnool, East	58	1,717	1,775	(b) 1,737	38
Do. South	25	411	436	(b) 302	134
Do. West	..	..	..	..	..
Cuddapah, North	13	755	768	(b) 507	261
Do. South	..	600	600	(b) 412	188
Total	123	3,517	3,640	3,004	606
Fourth Circle.					
Chittoor	..	113	113	111	2
Vellore	409	218	627	534	93
Salem, North	12	154	166	67	99
Do. Central	8	27	35	32	3
Do. South	8	27	35	30	5
Total	437	539	976	774	202
Fifth Circle.					
Coimbatore, North	..	63	63	33	30
Do. South	3	(a) 92	95	16	79
Total	3	155	158	49	109
Sixth Circle.					
Mangalore, North	..	2,308	2,308	1,588	720
Do South	..	4,222	4,222	3,106	1,116
Wynaad	3	..	3	3	..
The Nilgiris	212	66	278	227	51
Total	215	6,596	6,811	4,924	1,887
Parlakimedi Maliahs	8	16	24	18	6
Grand total, Presidency	5,113	68,085	73,198	69,170	4,028

Note for the Second Circle.—(a) Sold departmentally.
(b) Used departmentally.
(c) Written off.

Note for the Fifth Circle.—(a) Includes 45 bags of seeds; one bag equals 2 quarters.

Annual Form No. 38.

Forest Department, Madras Presidency.

Statement showing the value of timber and other produce at sale depots for the year 1929-30.

District.	Decription of timber or produce.	On hand at commencement of the year.			On hand at close of the year.			Difference in value.	
		Number	Cubic feet.	Value.	Number.	Cubic feet.	Value.	In favour of the year.	Against the year.
	First Circle.			Rs.			Rs.	Rs.	Rs.
Vizagapatam.	Timber ..	19 and 100 cls.	2,085	120	1	12	16	..	104
Nellore ..	Do. ..	..	427	80	..	465	80	..	..
		..	2,512	200	..	477	96	..	104
Nellore ..	Fuel	..	50	1	..	40	1	..	..
			QRS.			QRS.			
Vizaga-patam.	Minor forest produce.	..	43	172	..	86	59	..	113
Nellore ..	Do.	..	2,664	2,692	..	262	295	..	2,397
		..	2,707	2,864	..	.. 348	354	..	2,510
	Total ..	..	..	3,065	..	..	451	..	2,614
	Second Circle.								
Kurnool, South.	Timber ..	..	920	920	..	1,882	2,356	1,436	..
		..	920	920	..	1,882	2,356	1,436	..
Kurnool, South.	Fuel	..	* 2,900	73	..	3,691	37	..	36
Cuddapah, South.	Fuel	..	..	..	..	2,460	41	41	..
		..	2,900	73	..	6,151	78	41	36
	Total ..	..	..	993	..	..	2,434	1,441	..
	Fourth Circle.								
Chittoor ..	Timber ..	..	..	..	..	76	9	9	..
	Fuel	..	9,520	298	..	10,091	946	648	..
Vellore ..	Timber ..	..	1,412	41,332	..	..	..	..	41,332
	Minor forest produce.	..	QRS. 355	222	..	..	..	..	222
Salem, North.	Timber ..	..	769	9,617	..	609	2,494	..	7,123
	Fuel	..	320	16	..	..	..	..	16
	Minor forest produce.	..	QRS. 12	71	..	QRS 99	479	408	..
Salem, Central.	Timber ..	..	..	..	..	22	579	579	..
	Fuel	..	5,627	264	..	..	..	..	264
	Minor forest produce.	..	QRS. 8	13	..	QRS. 3	11	..	2

* This is reported to have been omitted by mistake in columns (7) and (8) of the return for 1928-29.

Statement showing the value of timber and other produce at sale depots for the year 1929-30—*cont.*

District.	Description of timber or produce.	On hand at commencement of the year.			On hand at close of the year.			Difference in value.	
		Number.	Cubic feet.	Value.	Number.	Cubic feet.	Value.	In favour of the year.	Against the year.
	Fourth Circle—cont.			Rs.			Rs.	Rs.	Rs.
South Salem.	Timber ..	..	435	1,616	..	1,246	3,253	1,637	..
	Fuel	..	11,050	180	..	6,570	122	..	58
	Minor forest produce.	..	8 qrs.	6	..	5 qrs.	4	..	2
	Total ..	..	..	53,635	..	..	7,897	..	45,738
Abstract.	Timber ..	..	2,616	52,565	..	1,953	6,335	..	..
	Fuel ..	..	26,517	758	..	16,661	1,068	..	..
	Minor forest produce.	..	383	312	..	..	494	..	..
	Total ..	..	..	53,635	..	..	7,897	..	45,738
	Fifth Circle.								
Coimbatore, North.	Timber ..	..	938	26,036	..	1,871 qrs.	46,531	20,495	..
	Sambur and deer horns.	..	..	..	..	28	72	72	..
Madura ..	Timber ..	..	382 and 279 brake poles.	205	..	272	128	..	77
	Fuel ..	..	5,820	727	..	1,215	86	..	641
Tinnevelly.	Timber ..	..	1,965	2,431	..	5,121	6,335	3,371	..
			* 12	533					
	Fuel ..	..	11,565	2,891	..	7,110	1,777	..	1,114
Abstract ..	Timber ..	..	3,297 and 279 brake poles.	29,205	..	7,264	52,994	23,789	..
	Fuel ..	..	17,385	3,618	..	8,325 qrs.	1,863	..	1,755
	Sambur and deer horns.	..	..	..	..	28	72	72	..
..			..	32,823	..	..	54,929	22,106	..
	Sixth Circle.								
Mangalore, North.	Timber ..	..	38,784	25,508	..	29,550	23,899	..	1,609
Mangalore, South.	Do. ..	..	6,423	7,463	..	8,073	8,624	1,161	..
Wynaad ..	Do. ..	..	5,365	16,050	..	9,367	26,488	10,438	..
	Total ..	..	50,572	49,021	..	46,990	59,011	9,990	..

* The opening balance is raised as per this office R.O.C. No. 1818/29, dated 19th November 1929. (Stock account for 1928-29.)

Statement showing the value of timber and other produce at sale depots for the year 1929–30—*cont.*

District.	Description of timber or produce.	On hand at commencement of the year.			On hand at close of the year.			Difference in value.	
		Number.	Cubic feet.	Value.	Number.	Cubic feet.	Value.	In favour of the year.	Against the year.
	Sixth Circle —cont.			RS.			RS.	RS.	RS.
	Utilization division								
Kasaragod Depot, South Mangalore.	Timber	..	37,046	65,000	..	57,780	1,10,460	45,460	..
Nanjangode Depot (Wynaad).	Do.	..	33,108	80,500	..	26,123	64,250	..	16,250
Beypore Depot (Nilambur).	Do.	..	55,870	1,20,050	..	1,37,374	1,93,700	73,650	..
Olavakkot Depot (Palghat).	Do.	..	38,785	* 60,400	..	1,344	2,350	..	58,050
	Total	..	1,64,809	3,25,950	..	2,22,621	3,70,760	44,810	..
Mangalore, North.	Minor produce (Hopea bark).	..	..	..	...	TONS $4\frac{7}{8}$	439	439	..
Chenat Nair Exploitation.	Timber logs	..	25,559	23,922	..	411	194	..	23,728
	Scantlings	..	65,029	59,411	..	6,098	7,121	..	52,290
Parlakimedi maliahs.	Timber	192	765	1,148	124	248	372	..	776
	Fuel	173	22,100	884	292	29,200	1,168	284	..
			QRS.			QRS.			
	Minor produce.	..	780	218	..	6·13	170	..	48
Total, Presidency.	Timber	..	316,079	5,42,342	..	287,944	4,99,239	..	43,103
	Fuel	..	68,952	5,334	..	60,377	4,141	..	1,193
			QRS.			QRS.			
	Minor produce.	..	3,098	3,394	..	772	1,536	..	1,858
Grand Total, Presidency.	..	..	..	5,51,070	..	..	5,04,916	..	46,154

* Not included in the previous return.

Annual Form No. 39.

Forest Department, Madras Presidency.

Summary of Revenue of the different districts, 1929-30.

Budget Heads.	Direction.	Ganjam.	Vizagapatam.	Godavari Upper.	Godavari Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
First Circle.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
VIII. Forest Receipts.												
a. Timber and other produce removed from forests by Government Agency.												
Other produce—												
Timber ..	..	26,995	6,401	87,891	232	5	..	1,21,524	1,932	4,540	6,472	1,27,996
Firewood and charcoal.	(*a*) 20	776	..	285	2,498	103	24	3,706	2,845	..	2,845	6,551
Bamboos ..	..	79	..	..	..	..	..	79	..	..	.	79
Other minor produce.	(*b*) 5,551	96	54	..	59	..	8,377	14,137	456	..	456	14,593
Total, *a* ..	5,571	27,946	6,455	88,176	2,789	108	8,401	1,39,446	5,233	4,540	9,773	1,49,219
b. Timber and other produce removed from the forests by consumers or purchasers.												
Forest Department—												
Timber ..	..	15,368	94	20,802	23,786	775	6	60,831	5,998	131	6,129	66,960
Firewood and charcoal	(*c*) 45,858	34,039	5,733	934	57,517	37,242	36,764	2,18,087	5,639	..	5,639	2,23,726
Bamboos ..	..	8,190	18,524	27,862	1,00,837	9,445	..	1,64,858	4,565	200	4,765	1,69,623
Grazing and fodder grass.	..	9,692	2,876	7,950	17,860	51,751	23,356	1,13,485	1,401	231	1,632	1,15,117
Other minor produce.	(*d*) 2,094	1,736	7,151	3,763	42,472	6,765	6,060	70,041	28,705	800	29,505	99,546
Total, Forest department.	47,952	69,025	34,378	61,311	2,42,472	1,05,978	66,186	6,27,302	46,308	1,362	47,670	6,74,972

(*a*) Sale of fuel, Direction office. (*b*) Minor forest produce, Nellore. (*c*) Relates to Nellore.
(*d*) An amount of Rs. 141 represents lease of cashew nuts under Direction and Rs. 1,953 relate to Nellore.

Summary of Revenue of the different districts, 1929-30—*cont.*

Budget Heads.	Direction.	Ganjam.	Vizagapatam.	Godavari Upper.	Godavari Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
FIRST CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts —cont.												
b. Timber and other produce removed from the forests by consumers or purchasers—*cont.*												
Revenue Department—												
Timber ..	..	20,575	3,244	..	10,481	1,852	2,655	38,807	..	..	..	38,807
Firewood and charcoal.	..	4,000	2,288	..	1,668	12,265	2,271	22,492	..	..	..	22,492
Bamboos ..	..	333	..	..	..	..	..	333	..	..	..	333
Other minor produce.	..	4,673	2,208	..	35,924	19,243	7,144	69,192	..	..	..	69,192
Total, Revenue department.	..	29,581	7,740	..	48,073	33,360	12,070	1,30,824	..	..	..	1,30,824
Total, *b.* ..	47,952	98,606	42,118	61,311	2,90,545	1,39,338	78,256	7,58,126	46,308	1,362	47,670	8,05,796
c. Drift and Waifwood and Confiscated Forest Produce.	..	786	43	2,175	3,550	291	355	7,200	16	13	29	7,229
e. Miscellaneous—												
Fines and forfeitures.	(*a*) 60	696	611	125	3,032	780	491	5,795	57	10	67	5,862
Rents of buildings.	..	1,645	353	1,596	1,789	353	1,126	6,862	188	119	307	7,169
Other sources.	(*b*) 50	7,865	5,346	2,602	12,396	16,722	13,184	58,165	1,150	288	1,438	59,603
Total, *e.* ..	110	10,206	6,310	432	17,217	17,855	14,801	70,822	1,395	417	1,812	72,634

(*a*) Fines imposed by the District Forest Officer, Nellore.

(*b*) Compounding fees relating to Nellore.

Summary of Revenue of the different districts, 1929–30—*cont.*

Budget Heads.	Direction.	Ganjam.	Vizagapatam.	Godavari Upper.	Godavari Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
FIRST CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts —cont.												
f. Recoveries of investments on Government Commercial undertakings.	..	1,21,000	..	..	..	..	..	1,21,000	..	..	..	1,21,000
Total ..	53,633	2,58,544	54,926	1,55,985	3,14,101	1,57,592	1,01,813	10,96,594	52,952	6,332	59,284	11,55,878
h. Deduct—Refunds —Voted. Refunds by forest officers.	..	303	1,585	1,024	4,178	1,456	432	8,978	27	72	99	9,077
Grand total ..	53,633	2,58,241	53,341	1,54,961	3,09,923	1,56,136	1,01,381	10,87,616	52,925	6,260	59,185	11,46,801

Summary of revenue of the different districts, 1929-30—*cont.*

Budget heads.	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
SECOND CIRCLE.								
VIII. Forest Receipts.		RS.	RS.	RS.	RS.	RS.	RS.	RS.
(*a*) Timber and other produce removed from forests by Government Agency—								
Other produce—								
Timber	..	..	7,090	24,952	5,589	70	2,201	39,902
Firewood and charcoal	..	12	..	111	6,339	157	49	6,668
Bamboos	..	..	186	..	..	..	..	186
Other minor produce	..	..	1	..	..		..	1
Total (*a*)	..	12	7,277	25,063	11,928	227	2,250	46,757
(*b*) Timber and other produce removed from the forests by consumers or purchasers—								
Forest Department—								
Timber	..	6,072	2,666	13,368	11,908	4,154	26,515	64,683
Firewood and charcoal	..	6,832	2,067	13,984	16,372	30,458	72,853	1,42,566
Bamboos	..	547	4,363	33,540	22,699	3,281	8,300	72,730
Grazing and fodder grass	..	32,293	32,044	23,268	37,340	27,239	19,712	1,71,896
Other minor produce	..	19,078	3,029	2,256	13,812	4,769	8,767	51,711
Total, Forest Department	..	64,832	44,169	86,416	1,02,131	69,901	1,36,147	5,03,586
Revenue Department—								
Timber	..	28,746	671	1,632	6,091	423	418	37,981
Firewood and charcoal	..	6,560	249	1,116	4,562	989	300	13,776
Other minor produce	..	2,76,944	3,655	4,452	32,787	5,204	6,138	3,29,180
Total, Revenue Department	..	3,12,250	4,575	7,200	43,440	6,616	6,856	3,80,937
(*c*) Drift and waifwood and confiscated forest produce	..	265	22	360	663	80	1,022	2,412

Summary of revenue of the different districts, 1929–30—*cont.*

Budget heads.	Direction.	Anantapur	Kurnool, East.	Kurnool, South.	Kurnool, West	Cuddapah, North.	Cuddapah, South.	Total.
SECOND CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts—cont.								
(*e*) Miscellaneous—								
Fines and forfeitures	..	609	20	2,626	586	558	425	4,824
Rents of buildings	10	412	1,210	2,279	2,545	1,513	1,237	9,206
Other sources	153	18,933	4,033	14,557	20,390	6,799	8,989	73,854
Total (*e*) ..	163	19,954	5,263	19,462	23,521	8,870	10,651	87,884
Total ..	163	3,97,303	61,306	1,38,501	1,81,683	85,694	1,56,926	10,21,576
(*h*) *Deduct*—Refunds—Voted—								
Refunds by Forest officers	..	626	102	448	923	196	124	2,419
Grand total ..	163	3,96,677	61,204	1,38,053	1,80,760	85,498	1,56,802	10,19,157

Summary of revenue of the different districts, 1929–30—*cont.*

Budget heads.	Direction.	Research.	Working Plans Officer, Mangalore.	Working Plans Officer, Ganjam.	Working Plans Officer, North Coimbatore.	Working Plans Officer, Mount Stuart.	Working Plans Officer, Wynaad.	Total.
THIRD (WORKING PLANS) CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts.								
(*e*) Miscellaneous—								
Rents of buildings	485	113	15	21	1	7	1	648
Other sources	..	20	200	..	11	5	..	236
Total (*e*) ..	485	138	215	21	12	12	1	884
(*h*) *Deduct*—Refunds—Voted—								
Refunds by forest officers	.. .	7	..	9	..	..	..	16
Grand total ..	485	131	215	12	12	12	1	868

Summary of revenue of the different districts, 1929-30—*cont.*

Budget heads.	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
FOURTH CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts.							
(*a*) Timber and other produce removed from forests by Government Agency—							
Sandalwood	* 6,747	792	2,20,485	2,95,237	19,316	24,150	5,66,727
Other produce—							
Timber	..	4,212	96	236	193	202	4,939
Firewood and charcoal	..	84	899	8	110	375	1,476
Bamboos	..	2	..	..	..	..	2
Other minor produce	..	27	257	16	..	4	304
Total ..	..	4,325	1,252	260	303	581	6,721
Total (*a*) ..	6,747	5,117	2,21,737	2,95,497	19,619	24,731	5,73,448
(*b*) Timber and other produce removed from the forests by consumers or purchasers—							
Forest Department—							
Timber	..	478	325	18	1,205	..	2,026
Firewood and charcoal	..	8,065	25,213	1,740	26,796	2,805	64,619
Bamboos	..	14,573	96,904	10,241	18,182	6,367	1,45,667
Grazing and fodder grass	..	25,828	50,442	33,663	66,520	22,749	1,99,202
Other minor produce	..	9,693	24,858	4,606	7,492	22,948	69,597
Total, Forest Department ..	..	58,637	1,97,142	50,268	1,20,195	54,869	4,81,111
Revenue Department—							
Timber	..	7,096	22,243	9,715	17,646	39,064	95,764
Firewood and charcoal	..	1,878	18,453	1,291	7,431	5,739	34,792
Bamboos		..	..	809	2	..	811
Other minor produce	..	11,155	39,631	11,439	17,061	16,367	95,623
Total, Revenue Department ..	..	20,129	80,297	23,254	42,140	61,170	2,26,990
Total (*b*) ..	..	78,766	2,77,439	73,522	1,62,335	1,16,039	7,08,101

* Sandalwood revenue relating to other circles—

	RS
Tinnevelly	5,789
South Cuddapah ..	615
Bellary	123
Anantapur	240
Total ..	6,747

Summary of revenue of the different districts, 1929–30—*cont.*

Budget heads.	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
FOURTH CIRCLE—*cont.*							
VIII. Forest Receipts—cont.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
(*c*) Drift and waifwood and confiscated forest produce	..	69	292	98	188	121	768
(*e*) Miscellaneous—							
Fines and forfeitures	..	584	1,539	548	398	791	3,860
Rents of buildings	..	2,156	2,325	1,049	1,489	322	7,341
Other sources	17	6,755	31,087	6,469	22,735	19,541	86,604
Total (*e*) ..	17	9,495	34,951	8,066	24,622	20,654	97,805
Total ..	6,764	93,447	5,34,419	3,77,183	2,06,764	1,61,545	13,80,122
(*h*) *Deduct*—Refunds—Voted—							
Refunds by forest officers	..	91	6,642	364	2,609	666	10,372
Grand Total ..	6,764	93,356	5,27,777	3,76,819	2,04,155	1,60,879	13,69,750

Summary of revenue of the different districts, 1929–30.

Budget heads.	Direction.	Kollegal.	Coimbatore, North.	Coimbatore, South.	Madura.	Tinnevelly.	Tanjore.	Circle Total.
FIFTH CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forests.								
Timber and other produce removed from the forests by Government agency—								
Sandalwood	36,188	..	3,46,410	1	..	..	..	* 3,82,599
Other produce—								
Timber	..	2	631	(*b*) 5,316	1,735	3,994	..	11,678
Firewood and charcoal	..	10	6	299	2,094	1,571	26	4,006
Other minor produce	..	..	(*a*) 37	413	18	..	..	468
Timber and other produce removed from the forests by consumers or purchasers—								
Forest Department—								
Timber	..	2,660	846	5,696	1,210	..	..	10,412
Firewood and charcoal	..	4,520	19,766	17,298	1,13,158	92,086	1,245	2,48,073
Bamboos	..	9,237	19,262	2,571	2,742	899	..	34,711
Grazing and fodder grass	..	47,192	37,823	4,830	26,964	7,442	358	1,24,609
Other minor produce	..	6,251	14,741	7,787	29,308	14,592	2,299	74,978
Revenue Department—								
Timber	..	2,232	3,140	2,388	9,837	625	357	18,579
Firewood and charcoal	..	194	2,772	2,621	12,159	17,083	2,470	37,299
Bamboos	..	..	..	..	2	..	..	2
Other minor produce	..	1,526	3,146	1,752	23,900	15,023	3,835	49,182
Drift and waifwood and confiscated forest produce	..	(*a*) 57	457	31	469	368	1	1,373
Recoveries of indirect charges from Government commercial undertakings—								
Mount Stuart Forests	..	..	..	34,125	..	..	..	34,125
Miscellaneous—								
Fines and forfeitures	..	328	417	157	1,290	1,301	16	3,509
Rents of buildings	..	994	1,029	5,840	2,296	1,364	1	11,524
Other sources	31	7,747	10,594	8,806	26,400	10,421	9,359	73,358
Total	36,219	82,950	4,61,077	99,931	2,53,572	1,66,769	19,967	11,20,485
Deduct—Refunds	..	56	1,032	256	2,763	350	..	4,457
Net Total	36,219	82,894	4,60,045	99,675	2,50,809	1,66,419	19,967	11,16,028

NOTE.—Excludes Rs. 5,769 being revenue of Tinnevelly, Sandalwood realized in Fourth circle.

(*a*) Excludes Revenue realized by F.U.O., Madras, on account of sale of tusks.

(*b*) Excludes Rs. 1,20,866 being Revenue obtained from Valparai sleeper project.

	RS.
* Kollegal ..	1,55,525
Coimbatore, North.	2,23,985
The Nilgiris ..	3,088
Coimbatore, South ..	1

Summary of revenue of the different districts, 1929-30—*cont.*

Budget heads.	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts.								
(*a*) Timber and other produce removed from forests by Government agency—								
Sandalwood	..	2,374	9,941	..	24,977	..	..	37,292
Other produce—								
Timber	(*a*) 217	44,377	29,582	1,57,553	46,008	88,654	..	3,66,391
Firewood and charcoal	..	802	360	..	40,884	126	..	42,172
Bamboos	..	..	..	8	..	..	..	8
Other minor produce	(*b*) 2,070	1,827	587	162	315	..	..	4,961
Total ..	2,287	47,006	30,529	1,57,723	87,207	88,780	..	4,13,532
Total (*a*) ..	2,287	49,380	40,470	1,57,723	1,12,184	88,780	..	4,50,824
(*b*) *Timber and other produce* removed from the forests by consumers or purchasers—								
Forest Department—								
Timber	..	75	1,034	904	295	..	..	2,308
Firewood and charcoal	..	14,027	2,290	1	5,899	60,297	..	82,514
Bamboos	..	5	523	1,656	783	13,097	..	16,064
Grazing and fodder grass	..	5,502	9,785	4,331	5,979	5,208	..	30,805
Other minor produce	..	6,668	4,696	6,953	2,459	6,484	920	28,180
Total, Forest Department ..	..	26,277	18,328	13,845	15,415	85,086	920	1,59,871
Revenue Department—								
Timber	..	6,645	9,822	3,712	20,233	2,323	..	42,735
Firewood and charcoal	..	8,693	880	688	1,994	1,925	..	14,180
Bamboos	..	19	43	..	..	..	..	62
Other minor produce	..	1,465	3,245	229	..	4,450	..	9,389
Total, Revenue Department ..	..	16,822	13,990	4,629	22,227	8,698	..	66,366
Total (*b*) ..	..	43,099	32,318	18,474	37,642	93,784	920	2,26,237

(*a*) Relates to Wynaad division.

(*b*) Relates to South Mangalore division.

Summary of revenue of the different districts, 1929-30—*cont.*

Budget heads.	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE—*cont.*								
VIII. Forest Receipts—cont.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
(*c*) Drift and waif wood and confiscated forest produce.	..	348	289	37	10	29	..	713
(*d*) Profits from Government commercial undertakings.	..	..	..	..	..	..	1,24,370	1,24,370
Total (*d*)	..	..	..	..	..	..	1,24,370	1,24,370
(*e*) Miscellaneous—								
Fines and forfeitures	..	127	17	80	168	1,004	16	1,412
Forest College	..	..	..	..	..	..	..	..
Rents of buildings	893	2,119	1,581	3,307	1,211	1,256	7,128	17,495
Other sources	(*c*) 945	8,699	7,130	16,365	11,869	6,044	540	51,592
Total (*e*)	1,838	10,945	8,728	19,752	13,248	8,304	7,684	70,499
(*f*) Recoveries of investments in Government commercial undertakings.	..	..	..	..	..	..	1,832	1,832
Total (*f*)	..	..	..	..	..	..	1,832	1,832
(*g*) Recoveries of indirect charges from Government commercial undertakings.	..	..	..	..	..	..	53,939	53,939
Total (*g*)	..	..	..	..	..	..	53,939	53,939
Total	4,125	1,03,772	81,805	1,95,986	1,63,084	1,90,897	1,88,745	9,28,414
(*h*) *Deduct*—Refunds—Voted—								
Refunds by forest officers	..	89	883	238	531	11	..	1,752
Grand Total	4,125	1,03,683	80,922	1,95,748	1,62,553	1,90,886	1,88,745	9,26,662

(*c*) Of this, Rs. 865 relates to Nilambur division (Beypore tope).

Apportionment of revenue collected by Forest Utilization Officer—

	Rs.
South Mangalore	1,05,281
Wynaad	1,55,534
Nilambur (Beypore tope only)	4,419
Palghat	307
The Nilgiris	32
North Mangalore	1
	2,65,574

Collected in other divisions—

	Rs.
V. Sandalwood	3,088
Minor forest produce—	
Forest Department	625
	3,713
Forest Engineer—	
Parappa Saw Mill	987
Chedleth Saw Mill	2,151

Summary of revenue of the different districts, 1929–30—*cont.*

Budget heads.	Forest Utilization division.	Forest Engineer.	Forest Engineer-in-charge, Saw Mills and Extraction.	Logging Engineer.	Chief Forest Engineer.	Exploitation division.	Total.
ENGINEERING BRANCH.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
VIII. Forest Receipts.							
(*a*) Timber and other produce removed from the forest by Government agency—							
Timber	3,79,732	64,680	7,505	..	17	..	4,51,934
Other minor produce	1,783	..	..	..	..	..	1,783
(*b*) Timber and other produce removed by consumers or purchasers—							
Firewood and charcoal	..	2,474	..	..	..	..	2,474
Bamboos	..	1,500	..	..	..	..	1,500
Other minor produce	4,002	..	..	..	..	..	4,002
(*e*) Miscellaneous—							
Fines and forfeitures	1	..	..	1	..	..	2
Rent of buildings	74	..	..	58	..	2,396	2,528
Other sources	486	—3,333	3,248	421	..	..	822
(*f*) Recoveries of investments in Government commercial undertakings.	..	..	..	..	..	2,448	2,448
(*g*) Recoveries of indirect charges from Government commercial undertakings.	..	..	..	..	..	26,954	26,954
Grand Total ..	3,86,078	65,321	10,753	480	17	31,798	4,94,447
(*h*) *Deduct*—Refunds—Voted ..	100	..	1,312	156	..	..	1,568
Net Total ..	3,85,978	65,321	9,441	324	17	31,798	4,92,879

Copy submitted to the Chief Conservator of Forests, Chepauk, Madras.

Summary of expenditure of the different districts for the year 1929-30.

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Ganjam.	Vizagapatam.	Godavri, Upper.	Godavari, Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
FIRST CIRCLE.												
8. b. Conservancy and Works	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
I. Forest produce removed by Government agency—Voted—												
Timber	..	955	1,348	12,577	..	..	..	14,880	886	2,277	3,163	18,043
Other produce—												
1. Firewood and charcoal ..	..	..	..	154	41	..	..	195	506	..	506	701
2. Bamboos	..	..	..	..	..	..	..	..	..	4	4	4
3. Grass and other minor produce.	..	..	..	..	107	..	6,072	6,179	83	..	83	6,262
Total ..	..	955	1,348	12,731	148	..	6,072	21,254	1,475	2,281	3,756	25,010
II. Forest produce removed by private agency—Voted.	..	7,476	2,725	5,722	11,669	11,832	5,446	44,870	2,080	583	2,663	47,533
III. Maintenance, repairs and renewals—												
(*a*) Feed and keep of live-stock ..	..	..	..	875	851	..	29	1,755	..	..	..	1,755
(*b*) Renewals and replacemements of stores, tools and plant.	..	362	43	887	2,530	526	20,073	24,421	15	..	15	24,436
(*c*) Communications and buildings—												
Roads and bridges ..	..	1,950	629	904	1,201	1,877	1,298	7,859	..	..	..	7,859
Buildings	..	8,814	1,154	2,675	2,967	711	2,597	18,918	199	277	476	19,394
Non-voted—Rates and taxes.	..	65	10	..	131	..	23	229	..	..	..	229
Other works	..	441	7	43	38	16	73	618	100	..	100	718
Total ..	..	11,632	1,843	5,384	7,718	3,130	24,093	53,800	314	277	591	54,391
IV. Conservancy and regeneration—												
(*a*) Maintenance of boundaries ..	..	..	81	1	862	54	..	998	..	..	..	998
(*b*) Regeneration	277	..	56	1,868	3,040	164	119	5,524	131	92	223	5,747
(*c*) Fire protection	..	7,121	257	4,499	2,199	..	408	14,484	582	71	653	15,137
(*d*) Other works	..	4,940	96	4	984	448	578	7,050	..	22	22	7,072

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation.)	Direction.	Ganjam.	Vizagapatam.	Godavari, Upper.	Godavari, Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
FIRST CIRCLE—*cont.*												
8. *b. Conservancy and Works*—cont.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
V. Miscellaneous—												
Honoraria—Voted	..	..	..	..	..	106	12	118	..	..	..	118
Non-contract contingencies—											..	
Non-voted—												
Rates and Taxes	..	..	..	..	148	..	..	148	..	..	..	148
Non-contract contingencies—	..	..	..	..	..	..	8	8	..	..	..	8
Voted—(Law charges).												
Drift and waifwood and confiscated forest produce.	..	4	..	333	7	10	..	354	..	..	..	354
Rent on leased forests	..	..	547	..	2,535	..	..	3,082	..	..	..	3,082
Total ..	277	12,065	1,037	6,705	9,775	782	1,125	31,766	713	185	898	32,664
VI. Suspense—Works Advances—Voted.	..	..	..	—21	..	..	..	21	..	..	..	—21
Total ..	277	32,128	6,953	30,521	29,310	15,744	36,735	1,51,669	4,582	3,326	7,908	1,59,577
8. *c. Establishments.*												
Pay of officers—Non voted	22,143	10,722	2,846	..	9,795	10,800	10,378	66,684	..	..	..	66,684
Pay of officers—Voted	..	15,824	5,414	15,641	8,432	..	..	45,311	7,209	..	..	52,520
Pay of establishments—Voted—												
Permanent	9,289	53,176	20,748	43,427	41,734	35,462	34,914	2,38,750	15,251	1,994	..	2,55,995
Temporary	..	2,314	673	2,989	1,263	..	..	7,239	799	1,928	..	9,966
Allowances—Non-voted—												
Travelling allowances	3,140	3,431	1,770	50	1,903	2,038	2,492	14,824	..	..	..	14,824
Allowances—Voted—												
Travelling allowances	735	11,017	3,489	11,717	7,520	2,924	5,920	43,322	3,625	908	..	47,855

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Ganjam.	Vizagapatam.	Godavari, Upper.	Godavari, Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
FIRST CIRCLE—*cont.*												
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.												
Allowances—Voted—*cont.*												
Fixed travelling allowances ..	..	2,579	1,026	2,498	2,226	1,574	1,352	11,255	706	225	..	12,186
Other compensatory	..	1,150	126	500	975	400	557	3,708	60	..	..	3,768
Contract contingencies—Voted ..	1,734	3,917	1,399	2,451	2,789	1,864	1,998	16,152	1,504	266	..	17,922
Non-contract contingencies — Non-voted—				..							..	
Rates and taxes	1,186	..	34	..	140	312	..	1,672	4	29	..	1,705
Pay of menials—												
Rents	852	1,027	684	..	1,004	1,247	1,599	6,413	607	336	..	7,356
Books and periodcals—												
Miscellaneous	70	73	70	115	1,228	3	32	1,591	1	24	..	1,616
Apparatus and materials ..	..	438	58	243	129	87	48	1,003	51	..	..	1,054
Charges payable to Governments, departments and others ..	..	..	..	..	..	414	..	414	630	..	..	1,044
Total ..	39,149	1,05,668	38,337	79,631	79,138	57,125	59,290	4,58,338	30,447	5,710	..	4,94,495
52-A. Capital outlay on Forests.												
(*a*) Forest surveys	11,397	..	..	..	..	..	..	11,397	..	..	..	11,397
(*b*) Organization, improvements and extension of forests—												
Demarcation	..	591	33	325	2,033	..	97	3,079	..	878	..	3,957
Sowing and planting	..	..	..	..	..	..	858	858	..	..	..	858
(*c*) Communications and buildings—												
Roads and bridges—												
Works in progress	..	1,864	387	960	..	..	..	3,211	..	..	..	3,211
New works	..	1,399	106	670	3,502	101	1,799	7,577	..	..	..	7,577

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Ganjam.	Vizagapatam.	Godavari, Upper.	Godavari, Lower.	Guntur.	Nellore.	Total.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	Grand total.
FIRST CIRCLE—*cont.*												
52-*A*. *Capital outlay on Forests*—cont.												
(*c*) Communications and buildings—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS
Buildings—												
Works in progress	..	— 21	654	— 200	1,499	..	..	1,932	..	..	..	1,932
New works	..	1,226	772	3,524	800	1,056	1,800	9,178	..	..	..	9,178
Other Works—												
Works in progress	..	274	..	137	..	..	..	411	..	..	..	411
New works	..	— 1	..	308	..	..	..	307	..	..	..	307
Live-stock, stores and tools and plant—												
Purchase of live-stock	..	..	..	4,086	..	..	..	4,086	..	..	..	4,086
Purchase of stores and tools and plant	..	303	..	571	336	608	..	1,818	..	6	..	1,824
Total ..	11,397	5,635	1,952	10,381	8,170	1,765	4,554	43,854	..	884	..	44,738

Summary of expenditure ot tne different districts for the year 1929-30.

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
SECOND CIRCLE.								
8. *b. Conservancy and Works.*								
I. Forest produce removed by Government agency—Voted—								
Timber	..	..	1,963	6,832	734	130	478	10,137
Other produce—								
1. Firewood and charcoal	..	123	..	..	1,848	161	97	2,229
2. Bamboos	..	..	119	..	..	..	..	119
3. Sandalwood	..	68	..	..	..	..	40	108
4. Grass and other minor produce	..	..	..	..	..	1	..	1
Total, I ..	..	191	2,082	6,832	2,582	292	615	12,594
II. Forest produce removed by private agency—Voted.	..	8,890	6,494	6,605	7,965	9,710	12,358	52,022
III. Maintenance, repairs and renewals—								
(*a*) Feed and keep of cattle	..	15	..	..	2,354	..	..	2,369
(*b*) Renewal and replacement of stores, tools and plant.	10	80	300	60	70	87	83	690
Total, II ..	10	95	300	60	2,424	87	83	3,059
(*c*) Communications and buildings—								
Roads and bridges	..	338	1,502	814	481	942	693	4,770
Buildings	..	1,870	1,802	870	1,172	1,018	1,507	8,239
Non-voted—Rates and taxes ..	..	..	6	..	252	..	14	272
Other works	..	74	170	..	25	15	4	288
Total, III ..	10	2,282	3,480	1,684	1,930	1,975	2,218	13,569

Summary of expenditure of the different districts for the year 1929–30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
SECOND CIRCLE—*cont.*								
8. *b. Conservancy and Works*—cont.								
IV. Conservancy and regeneration—								
1. Maintenance of boundaries	..	..	210	12	310	24	..	556
2. Forest—Surveys	..	..	663	..	..	..	..	663
3. Regeneration	..	133	182	359	1,045	16	157	1,892
4. Protection from fire	..	91	780	387	1,905	951	844	4,958
5. Other works	..	230	661	..	182	117	25	1,215
Total, IV ..	..	454	2,496	758	3,442	1,108	1,026	9,284
V. Miscellaneous—								
Honoraria—Voted—	..	30	..	..	..	..	..	30
Non-contract contingencies—Voted—Miscellaneous—Law charges.	..	..	..	..	..	1	2	3
Drift and waifwood and confiscated produce ..	..	..	..	12	59	12	14	97
Miscellaneous	..	..	141	..	30	50	..	221
Total, V ..	..	30	141	12	89	63	16	351
VI. Suspense—Works Advances—								
Voted	..	..	..	.	49	..	..	49
Total ..	10	11,942	14,993	15,951	18,481	13,235	16,316	90,928
Non-voted ..	..	..	6	..	252	..	14	272
Voted ..	10	11,942	14,987	15,951	18,229	13,235	16,302	90,656
Total ..	10	11,942	14,993	15,951	18,481	13,235	16,316	90,928

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
SECOND CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments.*								
Pay of officers—Non-voted	24,190	1,676	1,818	14,184	14,623	9,031	7,700	73,222
Pay of officers—Voted	..	6,000	8,074	1,600	7,582	1,935	..	25,191 (*a*)+1,200
Pay of establishments—Voted—								
1. Permanent	10,102	30,436	31,094	38,589	44,467	35,629	39,404	2,29,721
2. Temporary	..	295	1,216	644	1,742	816	284	4,997
Total ..	34,292	38,407	42,202	55,017	68,414	47,411	47,388	3,33,131
Allowances—Non-voted—								
Travelling allowance	2,922	372	94	2,696	2,912	1,584	1,356	11,936
Allowances—Voted—								
1. Travelling allowance	1,412	4,866	7,299	4,793	7,579	5,106	4,097	35,152
2. Fixed travelling allowance	..	1,052	1,856	1,942	1,413	1,372	1,957	9,592
3. Other compensatory	..	698	860	395	969	695	1,038	4,655
Total ..	4,334	6,988	10,109	9,826	12,873	8,757	8,448	61,335
Contract contingencies—Voted	2,003	2,197	2,739	2,494	2,698	2,219	1,990	16,340
Non-contract contingencies—Non-voted—								
Rates and taxes	..	154	16	247	..	214	38	669
Non-contract contingencies—Voted—								
1. Rents	2,868	1,368	420	660	1,110	828	1,418	8,672
2. Miscellaneous	24	38	22	52	376	116	37	665
Total ..	4,895	3,757	3,197	3,453	4,184	3,377	3,483	26,346
Charges payable to Governments, departments and others.	516	96	..	..	..	..	144	756

(*a*) Accountant-General's March supplemental adjustments transferred from the Fifth Circle.

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Anantapur.	Kurnool, East.	Kurnool, South.	Kurnool, West.	Cuddapah, North.	Cuddapah, South.	Total.
SECOND CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.								
Supplies and Services—General—								
Apparatus and materials	64	45	154	271	270	116	159	1,079
Total ..	580	141	154	271	270	116	303	1,835
Grand Total ..	44,101	49,293	55,662	68,567	85,741	59,661	59,622	4,22,647
Non-voted ..	27,112	2,202	1,928	17,127	17,535	10,829	9,094	85,827
Voted ..	16,989	47,091	53,734	51,440	68,206	48,832	50,528	3,36,820
52-*A. b. Conservancy and Works.*								
(*c*) Communications and buildings—								
Roads and bridges—								
Works in progress	..	..	..	..	610	..	..	610
New works	..	..	..	..	2,881	26	..	2,907
Buildings—								
Works in progress	..	67	3,127	..	..	847	..	4,041
New works	..	4,354	2,137	1,869	297	408	1,900	10,965
Other works—								
Works in progress	..	..	109	315	72	503	..	999
New works	..	..	174	450	..	479	2	1,105
Total ..	..	4,421	5,547	2,634	3,860	2,263	1,902	20,627
(*e*) Live-stock, stores, tools and plant—								
Purchase of live-stock	..	46	..	..	..	..	..	46
Purchase of stores, tools and live-stock ..	..	2	..	50	..	..	83	135
Total ..	..	48	..	50	..	..	83	181
Grand Total ..	..	4,469	5,547	2,684	3,860	2,263	1,985	20,808

Summary of expenditure of the different districts for the year 1929–30.

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Research.	Working Plans' Office.						Total.
			Mount Stuart.	Mangalore.	Ganjam.	North Coimbatore.	Wynaad.	Kurnool, West. Assistant.	
	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
III (Working Plans) Circle.									
8. *b. Conservancy and Works.*									
III. Maintenance, repairs and renewals—									
Renewals, replacements of stores and tools and plant.	..	93	..	..	..	..	..	..	93
Communications and buildings—									
Buildings	— 11	— 12	..	..	..	..	..	..	— 23
Total ..	— 11	81	..	..	..	..	..	..	70
VI. Suspense—Works Advances—Voted	..	5	..	..	..	..	..	..	5
Total ..	..	5	..	..	..	..	..	..	5
Voted ..	— 11	76	..	..	..	..	..	..	65
Grand Total ..	— 11	76	..	..	..	..	..	..	65
8. *c. Establishments.*									
Pay of officers—Non-voted	..	15,528	..	..	..	..	..	..	15,528
Pay of Establishments—Voted—									
1. Permanent	..	6,833	..	..	..	..	..	..	6,833
2. Temporary	..	3,592	..	..	..	..	..	..	3,592
Total ..	..	10,425	..	..	..	..	..	..	10,425

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Research.	Working Plans Office.						Total.
			Mount Stuart.	Mangalore.	Ganjam.	North Coimbatore.	Wynaad.	Kurnool, West. Assistant.	
III (Working Plans) Circle—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
8. *c. Establishments*—cont.									
Allowances—Voted—									
1. Travelling allowance	..	2,919	..	..	..	..	..	..	2,919
2. Other compensatory	..	699	..	..	..	..	..	..	699
Total ..	..	3,618	..	..	..	..	..	..	3,618
Contract contingencies—Voted	..	823	..	..	..	..	..	..	823
Non-contract contingencies—Voted—									
1. Books and periodicals	..	60	..	..	..	..	..	..	60
2. Miscellaneous	..	116	..	..	..	..	..	..	116
Total ..	..	999	..	..	..	..	..	..	999
Charges payable to Governments departments and others	..	7,449	..	..	..	..	..	..	7,449
Supplies and Services—General—									
1. Apparatus and materials	..	33	..	..	..	..	..	..	33
2. Miscellaneous	..	6,881	..	..	..	..	..	..	6,881
Total ..	..	6,914	..	..	..	..	..	..	6,914
Grand Total ..	..	14,363	..	..	..	..	..	..	14,363
52-*A. Capital out lay on Forests.*									
(*c*) Live-stock, stores and tools and plant—Voted—									
Purchase of stores and tools and plant	754	..	13	68	..	..	..	..	835

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Research.	Working Plans Office.						Total.
			Mount Stuart.	Mangalore.	Ganjam.	North Coimbatore.	Wynaad.	Kurnool, West. Assistant.	
III (Working Plans) Circle—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
52-*A. b. Capital Outlay on Forests*—cont.									
(*f*) Organization, improvement and extension of forests—Voted—									
Working plans	1,491	..	6,973	1,146	781	1,065	118	282	11,856
Total, Voted ..	2,245	..	6,986	1,214	781	1,065	118	282	12,734
Regeneration.									
52-*A. g. Establishments.*									
Pay of officers—Non-voted	16,321	..	8,265	8,887	8,546	10,449	4,355	..	56,823
Pay of officers—Voted	15,382	..	136	..	..	..	..	4,228	19,746
Total ..	31,703	..	8,401	8,887	8,546	10,449	4,355	4,228	76,569
Pay of establishments—Voted—									
1. Permanent	6,297	165	5,705	4,244	5,250	4,129	610	123	26,523
2. Temporary	719	..	3,768	213	260	362	..	..	5,322
Total ..	7,016	165	9,473	4,457	5,510	4,491	610	123	31,845
Allowances—Non-voted—									
Travelling allowance	4,325	..	3,013	2,641	2,712	4,061	1,991	..	18,743
Cost of passages, etc.	864	..	..	..	..	..	..	..	864
Allowances—Voted—									
1. Travelling allowance	5,137	192	1,660	2,690	2,643	2,518	778	1,468	17,086
2. Fixed travelling allowance	154	..	1,415	141	..	599	68	..	2,377
3. Other compensatory	1,050	3	215	100	236	62	18	..	1,684
Total ..	11,530	195	6,303	5,572	5,591	7,240	2,855	1,468	40,754

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Research.	Working Plans Office.						Total.
			Mount Stuart.	Mangalore.	Ganjam.	North Coimbatore.	Wynaad.	Assistant. Kurnool West.	
III (Working Plans) Circle—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Regeneration—*cont.*									
52. *A. g. Establishments*—cont.									
Contract Contingencies—Voted	1,461	..	186	291	541	439	175	41	3,134
Non-contract contingencies—Voted—									
1. Rents	747	..	..	15	..	..	..	..	762
2. Books and Periodicals	5	..	..	..	..	7	..	..	12
3. Miscellaneous	25	..	2	..	18	38	..	..	83
Total ..	777	..	2	15	18	45	..	..	857
Supplies and Services—General—									
1. Apparatus and materials	113	..	43	..	..	..	..	..	156
2. Miscellaneous	298	..	..	..	..	..	..	..	298
Total ..	411	..	43	..	..	..	..	..	454
Total ..	52,898	360	24,408	19,222	20,206	22,664	7,995	5,860	1,53,613
Non-voted ..	21,510	..	11,278	11,528	11,258	14,510	6,346	..	76,430
Voted ..	31,388	360	13,130	7,694	8,948	8,154	1,649	5,860	77,183
Grand Total ..	55,143	360	31,394	20,436	20,987	23,729	8,113	6,142	1,66,304

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
FOURTH CIRCLE.							
8. *c. Conservancy, maintenance and Regeneration*	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Forest produce removed by Government Agency—							
Voted—							
Timber	..	751	47	3	38	352	1,191
Other produce—							
1. Sandalwood	..	231	11,823	17,588	2,474	2,368	34,484
2. Grass and other minor produce	..	..	20	..	..	..	20
Total	..	982	11,890	17,591	2,512	2,720	35,695
II. Timber and other produce removed from the forests by consumers and purchasers	..	7,754	13,718	6,219	11,424	6,923	46,038
III. Maintenance, repairs and renewals—							
Feed and keep of cattle	..	29	..	..	..	..	29
Renewals or replacement of stores and tools and plant	11	86	1,147	136	412	113	1,905
Total	11	115	1,147	136	412	113	1,934
IV. Communications and buildings—							
Roads and bridges	..	3,893	6,989	4,128	1,405	2,341	18,756
Buildings	..	1,856	7,204	1,386	2,599	1,840	14,885
Other works	..	48	243	42	53	31	417
Rates and taxes—Non-voted	..	251	315	23	126	117	832
Total	..	6,048	14,751	5,579	4,183	4,329	34,890
V. Conservancy and regeneration—							
1. Maintenance of boundaries	..	71	40	330	940	33	1,414
2. Regeneration	..	1,597	1,447	729	1,168	1,095	6,036
3. Fire protection	..	489	1,901	605	1,421	989	5,405
4. Other works	..	77	63	100	28	..	268
Total	..	2,234	3,451	1,764	3,557	2,117	13,123

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
FOURTH CIRCLE—*cont.*							
8. *c. Conservancy and Works*—cont.							
VIII. Miscellaneous—							
Rates and taxes—Non-voted	..	..	..	23	..	..	23
Law charges	..	..	..	2	5	8	15
Drift and waifwood and confiscated forest produce	..	..	8	8	4	15	35
Rent of leased forests and payments to share-holders in forests managed by Government.	....	..	..	287	..	....	287
Honoraria—Voted	..	..	51	..	91	96	238
Supplies and Services—Voted—Miscellaneous	..	..	..	3,428	..	90	3,518
Total	..	..	59	3,748	100	209	4,116
Grand Total	11	17,133	45,016	35,037	22,188	16,411	1,35,796
Non-voted	..	251	315	46	126	117	855
Voted	11	16,882	44,701	34,991	22,062	16,294	1,34,941
8. *c. Establishments.*							
Pay of Officers—Non-voted	25,800	14,305	10,800	9,800	..	..	60,705
Total	25,800	14,305	10,800	9,800	..	..	60,705
Pay of Officers—Voted	4,400	..	10,132	6,268	13,000	11,990	45,790
Pay of Establishments—Voted—							
1. Permanent	10,251	40,981	60,118	40,941	41,729	33,804	2,27,824
2. Temporary	87	744	2,218	2,904	984	1,558	8,495
Total	14,738	41,725	72,468	50,113	55,713	47,352	2,82,109

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
FOURTH CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.							
Allowances—Non-voted—							
Travelling allowance	1,880	1,810	1,946	2,305	..	..	7,941
Allowances—Voted—							
1. Travelling allowance	1,848	4,390	6,393	7,483	4,841	5,981	30,936
2. Fixed travelling allowance	..	1,784	3,845	2,237	1,867	1,559	11,292
3. Other Compensatory	..	610	1,003	873	584	522	3,592
Total	1,848	6,784	11,241	10,593	7,292	8,062	45,820
Contract Contingencies—Voted	1,196	2,022	3,085	2,832	2,495	1,985	13,615
Non-contract Contingencies—Non-voted—							
Rates and taxes	..	10	314	..	..	..	324
Non-contract Contingencies—Voted—							
1. Rents	1,190	335	2,998	1,701	465	207	6,896
2. Miscellaneous	57	140	296	279	19	170	961
Total	2,443	2,507	6,693	4,812	2,979	2,362	21,796
Charges payable to Governments, departments and others.	1,942	..	168	236	1,480	270	4,096
Supplies and Services—General—							
Apparatus and Materials	2	96	180	121	103	..	502
Total	48,653	62,227	1,03,496	77,980	67,567	58,046	4,22,969
Non-voted	27,680	16,125	13,060	12,105	..	..	68,970
Voted	20,973	51,102	90,436	65,875	67,567	58,046	3,53,999

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation).	Direction.	Chittoor.	Vellore.	North Salem.	Central Salem.	South Salem.	Total.
FOURTH CIRCLE—*cont.*	RS.	RS.	RS.	RS	RS.	RS.	RS.
8. *c. ii—Research.*							
Charges payable to Governments, departments, and others.	..	..	..	7,449	..	..	7,449
Total ..	..	..	..	7,449	..	..	7,449
Grand Total ..	..	..	..	..	..	..	3,61,448
52-*A—Capital Outlay.*							
(*a*) Forest surveys	..	..	..	..	..	.. 580	580
(*b*) Organization, improvement and extension of forests—							
Demarcation	..	64	..	5	256	..	325
Sowing and planting	..	..	..	..	50	..	50
Other works	..	99	400	..	57	..	556
Total ..	..	163	400	5	363	..	931
(*c*) Communications and buildings—							
Roads and bridges—							
New works	..	1,170	1,734	1,455	..	1,666	6,025
Buildings—							
Works in progress	..	..	..	2,428	..	1,600	4,028
New works	309	2,040	7,791	125	1,010	2,111	13,386
Other works—							
Works in progress	..	541	1,960	..	..	..	2,501
New works	..	1,065	369	170	195	52	1,851
Total ..	309	4,816	11,854	4,178	1,205	5,429	27,791
(*e*) Livestock, stores, tools and plant—							
Purchase of stores, tools and plant	..	400	611	400	396	457	2,264
Total ..	..	400	611	400	396	457	2,264
Grand Total ..	309	5,379	12,865	4,583	1,964	6,466	31,566

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation,)	Direction.	Kollegal.	Coimbatore, North.	Coimbatore, South.	Madura.	Tinnevelly.	Tanjore.	Total.
FIFTH CIRCLE.								
8. *b. Conservancy and Works.*	RS.	RS	RS.	RS.	RS.	RS.	RS.	RS
Timber, etc., removed by Government agency—								
Timber	..	..	188	6,860	800	3,363	..	11,211
Firewood and charcoal	..	..	316	237	861	111	..	1,525
Sandalwood	461	7,512	21,948	..	..	340	..	30,261
Grass and other minor forest produce	..	..	76	43	..	..	..	119
Forest produce removed by private agency.	..	10,341	9,987	2,774	13,334	6,743	256	43,435
Feed and keep of cattle	..	..	..	6,332	..	..	..	6,332
Renewals and replacement of stores	..	100	100	333	83	220	..	836
Roads and bridges	..	5,390	7,497	1,136	11,997	4,250	(*a*) 10	30,280
Buildings	..	1,895	1,839	1,311	2,639	2,921	(*a*) 267	10,872
Non-voted—Rates and taxes—								
Other works	..	72	..	20	252	47	9	400
Maintenance of boundaries	..	..	10	172	..	68	..	250
Regeneration	..	..	97	524	..	407	..	1,028
Fire protection	..	737	1,520	358	3,224	343	..	6,182
Other works	..	327	516	576	123	586	..	2,128
Drift and waifwood	..	..	14	..	..	..	..	14
Miscellaneous law charges	..	4	..	11	..	..	..	15
Honoraria	..	50	45	..	50	..	..	145
Supplies and services	..	..	..	29	75	94	..	198
Suspense—Works—Advances	..	..	— 50	42	— 20	85	..	57
Rates and taxes	..	38	69	..	361	33	..	501
Total	461	26,466	44,172	20,958	33,779	19,611	542	1,45,789
8. *c. District Establishments.*								
Pay of officers—Non-voted	26,425	11,700	11,099	19,352	17,942	8,526	..	95,044
Pay of officers—Voted	..	..	..	..	..	..	1,200	1,200
							(*b*) —1,200	(*b*) —1,200
Pay of establishment—Voted—								
(1) Permanent	10,546	35,003	34,823	20,647	47,210	38,351	985	1,87,565
(2) Temporary	7	920	892	974	1,453	932	..	5,178
Travelling allowance—Non-voted	3,072	3,495	3,875	5,676	4,029	2,268	..	22,415
Cost of passages granted	..	..	1,544	..	—25	..	..	1,519

(*a*) Rs. 10 has been erroneously debited by Accountant-General to roads and bridges instead of to buildings.
(*b*) Represents March Supplemental adjustments—Transferred to the Second Circle.

Summary of the expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor and sub-heads and units of appropriation.)	Direction.	Kollegal.	Coimbatore, North.	Coimbatore, South.	Madura.	Tinnevelly.	Tanjore.	Total.
FIFTH CIRCLE—*cont.*								
8. *c. District Establishments*—cont.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Travelling allowance—Voted	1,903	9,497	5,561	2,485	6,603	4,035	20	30,104
Fixed travelling allowance—Voted	..	1,620	1,663	406	2,739	1,239	120	7,787
Other compensatory	..	667	690	201	1,319	116	..	2,993
Contract contingencies	1,945	2,206	2,629	1,655	2,904	2,100	50	13,489
Non-contract contingencies—Non-voted—Rates and taxes.	..	..	104	51	153	4	..	312
Non-contract contingencies—Voted—Rents	1,512	1,140	638	1,292	781	756	..	6,119
Miscellaneous	426	..	84	37	45	77	..	669
Supplies and services—Apparatus and materials.	21	139	159	61	24	112	..	516
Charges payable to Governments, departments and others.	..	108	300	312	..	538	..	1,258
Total	45,857	66,495	64,061	53,149 (*a*) + 8,461	85,177	59,054	2,375	3,76,168 (*a*) + 8,461
52 *A. Capital Outlay on Forests.*								
Demarcation	..	271	74	30	635	..	..	1,010
Sowing and planting	..	..	..	3,876	395	2,571	..	6,842
Protection from fire	..	..	..	135	..	..	..	135
Other works	..	..	..	83	244	..	..	327
Rent of leased forests	..	..	..	2,500	..	..	..	2,500
Roads and bridges. Works in progress	..	..	..	..	325	..	..	325
Roads and bridges. New works	..	..	92	..	4,255	1,457	..	5,804
Buildings. Works in progress	..	505	..	..	..	124	..	629
Buildings. New works	..	4,850	201	1,957	1,295	168	..	8,471
Other works. Works in progress	..	..	..	..	..	..	..	..
Other works. New works	..	52	49	60	179	..	..	340
Purchase of cattle	..	..	..	2,781	..	..	..	2,781
Feed and keep of live-stock	..	..	..	1,312	..	..	..	1,312
Purchase of stores, etc.	..	183	347	278	159	184	..	1,151
Total	..	5,861	763	13,012	7,487	4,504	..	31,627
52. *A. d. Investments in Government Commercial undertakings.*								
Deduct receipts and recoveries on capital accounts	..	..	..	— 24,661	..	..	..	— 24,661

(*a*) Relates to Valparai sleeper project.

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor, sub-heads and units of appropriation.)	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE.	RS.	RS.	RS.	RS.	RS.	RS.		RS.
8. *b. Conservancy, Maintenance and Regeneration.*								
I. Forest produce removed by Government Agency—Voted—								
Timber	(*a*) 47	19,008	54,313	1,24,676	4,902	69,034	..	2,71,980
Firewood and charcoal	..	..	106	..	13,898	..	..	14,004
Bamboos	..	..	..	3	..	..	..	3
Sandalwood	..	342	813	..	2,100	..	..	3,255
Grass and other minor produce	..	1,365	1,605	6	230	..	..	3,206
Total (I)	47	20,715	56,837	1,24,685	21,130	69,034	..	2,92,448
II. Forest produce removed by private agency—Voted	..	1,846	1,109	2,307	28	5,772	..	11,062
III. Maintenance, repairs and renewals—								
Feed and keep of livestock	210	4,265	12,636	34,172	12,325	2,951	..	66,559
Renewals or replacement of stores and tools and plant	3	538	1,221	2,488	853	234	..	5,337
Communications and buildings—								
Roads and bridges	..	771	1,083	12,403	2,266	4,265	..	20,788
Buildings	254	1,330	1,707	2,410	3,233	2,389	..	11,323
Other works	..	272	47	1,184	76	269	..	1,848
Buildings—Rates and taxes (non-voted)	..	..	140	..	679	89	..	908
Total (III)	467	7,176	16,834	52,657	19,432	10,197	..	1,06,763
IV. Conservancy and regeneration—								
Maintenance of boundaries	..	30	127	60	939	37	..	1,193
Regeneration	..	3,330	2,847	15,699	3,852	5,874	..	31,602
Protection from fire	..	2,147	1,724	1,545	2,935	2,475	..	10,826

(*a*) Relates to South Mangalore.

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor, sub-heads and units of appropriation).	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE—*cont.*								
8. *b. Conservancy, Maintenance and Regeneration*—cont.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
IV. Conservancy and Regeneration—*cont.*								
Other works	..	63	715	15	548	63	..	1,404
Total (IV) ..	..	5,570	5,413	17,319	8,274	8,449	..	45,025
V. Miscellaneous—								
Rates and taxes—Non-voted ..	..	..	..	31	2,474	77	..	2,582
Drift and waifwood, etc.	..	10	40	..	1	..	..	51
Grants-in-aid—Nilgiris Game Association	..	..	..	..	5,396	..	..	5,396
Supplies and Services—General—								
Miscellaneous	..	184	7	1,853	..	86	..	2,130
Honoraria (voted)	..	30	..	..	20	..	..	50
Other charges	..	(—) 179	..	..	..	..	..	(—) 179
Total (V) ..	..	45	47	1,884	7,891	163	..	10,030
VI. Suspense—Works Advances	..	..	410	(—) 1,207	34	1,465	..	702
Grand Total ..	514	35,352	80,650	197,645	56,789	95,080	..	4,66,030
Voted ..	514	35,352	80,650	197,645	56,789	95,080	..	4,66,030
8. *c. Establishments.*								
Pay of Officers—Non-voted—								
Pay excluding passage pay ..	30,579	..	16,302	18,776	10,934	2,975	(—) 523	79,043
Pay of Officers—Voted	5,013	8,301	..	9 367	4,690	14,623	1,998	43,992
Pay of Establishments—Voted—								
Permanent	11,470	36,738	29,551	51,719	36,305	32,925	3,533	2.02,241
Temporary	787	500	1,291	1,694	861	1,631	13	6,777
Total ..	17,270	45,539	30,842	62,780	41,856	49,179	5,544	2,53,010

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor, sub-heads and units of appropriation.)	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.								
Allowances—Non-voted—								
Travelling allowance	5,825	..	3,950	4,420	2,447	636	..	17,278
Cost of passage, etc.	* 5,130	..	..	..	..	..	..	5,130
Total	10,955	..	3,950	4,420	2,447	636	.	22,408
Allowances—Voted—								
Travelling allowance	4,968	5,997	4,736	11,998	7,187	11,580	204	46,670
Fixed travelling allowance	14	1,881	2,037	2,566	2,031	1,811		10,340
Other compensatory	1,748	139	455	375	4,891	256	..	7,864
Total	6,730	8,017	7,228	14,939	14,109	13,647	204	64,874
Contract Contingencies—Voted	2,623	1,670	2,084	2,288	1,898	2,005	..	12,568
Non-contract Contingencies—Non-voted—								
Rates and taxes	79	4	..	..	109	..	..	192
Non-contract Contingencies—Voted—								
Rents	1,140	347	561	1,068	957	888	..	4,961
Books and periodicals	1	..	..	..	..	3	..	4
Miscellaneous	6	78	77	180	(—) 13	93		421
Total	3,849	2,099	2,722	3,536	2,951	2,989	..	18,146

* Rs. 880 relates to Wynaad on account of Mr. J. Coode.
Rs. 1,892 relates to Nilgiris on account of Mr. M. F. Bridge.
Rs. 2,267 relates to Wynaad on account of Mr. J. W. K. Wernham.
Details not available for the balance of Rs. 91.

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor, sub-heads and units of appropriation.)	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
SIXTH CIRCLE—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. *c. Establishments*—cont.								
Charges payable to Governments, departments and others.	..	..	..	..	3,430	..	..	3,430
Supplies and Services—General—Apparatus and Materials	47	209	95	243	97	159	..	850
Total ..	47	209	95	243	3,527	159	..	4,280
Grand Total ..	69,430	55,864	61,139	1,04,694	75,824	69,585	5,225	4,41,761
Non-voted ..	41,613	4	23,252	23,196	13,490	3,611	(—) 523	1,01,643
Voted ..	27,817	55,860	40,887	81,498	62,334	65,974	5,748	3,40,118
52. A—b. *Organization, improvement and extension of Forests.*								
Demarcation	..	..	..	1,371	..	..	..	1,371
Working plans	..	12	..	..	..	172	..	184
Sowing and planting	..	..	..	..	..	..	21,656	21,656
Protection from fire	..	..	..	..	..	..	3,550	3,550
Other works	..	..	..	..	..	29	221	250
Miscellaneous—								
Forest produce removed by private agency.	..	..	..	..	..	..	235	235
Total 52 A–b ..	..	12	..	1,371	..	201	25,662	27,246
52. A–c. *Communications and Buildings.*								
Roads and bridges—								
Works in progress	..	..	751	4,388	..	455	..	5,594
New works	..	..	298	350	..	2,142	1,368	4,158

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor, sub-heads and units of appropriation.)	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
		RS.	RS.	RS.	RS.	RS.	RS.	RS.
SIXTH CIRCLE—*cont.*								
52. A—*c Communications and buildings*—cont.								
Buildings—								
Works in progress	..	(—) 33	88	732	..	..	5,419	6,206
New works	..	3,660	1,398	3,650	3,840	799	9,057	22,404
Other works—								
Works in progress	..	340	..	237	..	..	..	577
New works	..	183	55	212	..	78	325	853
Total 52 A—*c*	..	4,150	2,590	9,569	3,840	3,474	16,169	39,792
52. A—*e. Livestock, stores, tools and plant.*								
Purchase of livestock	..	..	..	3,443	1,051	..	1,809	6,303
Feed and keep of livestock	..	..	..	..	117	..	..	117
Purchase of stores, tools and plant	..	205	333	2,085	86	524	346	3,579
Total 52 A—*e*	..	205	333	5,528	1,254	524	2,155	9,999
Grand Total 52 A—b, *c and e*	..	4,367	2,923	16,468	5,094	4,199	43,986	77,037
REGENERATION.								
52. *A—f. Establishments.*								
Pay of officers—								
Non-voted	..	..	..	..	..	..	5,265	5,265
Voted	..	..	..	..	..	..	2,464	2,464
Pay of Establishments—								
Permanent	..	..	..	..	..	..	12,645	12,645
Temporary	..	..	..	..	..	..	2,730	2,730
Allowances—Non-voted—								
Travelling allowance	..	..	..	..	..	..	1,059	1,059

Summary of expenditure of the different districts for the year 1929-30—*cont.*

Account heads (major, minor, sub-heads and units of appropriation.)	Direction.	Mangalore, North.	Mangalore, South.	Wynaad.	The Nilgiris.	Palghat.	Nilambur.	Total.
							RS.	RS.
SIXTH CIRCLE—*cont.*					..	..	..	
REGENERATION—*cont.*								
52. A—*f. Establishments*—cont.								
Allowances—Voted—								
Travelling allowance	..	..	..	..	..	..	1,703	1,703
Fixed travelling allowance	..	..	..	..	..	..	1,009	1,009
Other compensatory	..	..	..	..	..	..	145	145
Contract contingencies	..	..	..	..	..	..	269	269
Non-contract contingencies—Voted—								
Telephone charges	..	..	..	..	..	..	180	180
Miscellaneous	..	..	..	..	..	..	35	35
Total 52 A—*f* ..	..	..	..	..	..	..	27,504	27,504
52. A—*h. Investments in commercial undertakings.*							..	
Nilambur Valley Forests	..	..	..	..	..	..	27,321	27,321
Total 52 A—*h.* ..	..	..	..	..	..	..	27,321	27,321
52A—*k. Deduct receipts and recoveries on capital account.*								
Nilambur Valley Forests	..	..	..	..	..	..	(—) 17,866	(—) 17,866
Total 52 A—*k.* ..	..	..	..	..	..	..	(—) 17,866	(—) 17,866

Summary of expenditure of the different divisions of the Forest Engineering Branch for the year 1929–30.

Budget heads.	Forest Utilization division.	Forest Engineer.	Forest Engineer-in-charge of sawmills and extraction.	Logging Engineer.	Chief Forest Engineer.	Exploitation division.	III (Working Plans) Circle.	Conservator, Fifth Circle.	Total.
ENGINEERING BRANCH.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. (*b*) *Conservancy and Works.*									
I. Forest produce removed by Government Agency—									
Timber	15,190	69,783	1,50,350	635	— 250	..	..	..	2,35,708
III. Maintenance, repairs and renewals—									
Renewals or replacements of stores, tools and plants.	77	420	18,619	..	..	..	..	..	19,116
Communications and buildings—									
Roads and bridges ..	..	3,102	2,574	..	..	..	..	..	5,676
Buildings	3	..	742	..	..	..	..	..	745
VI. Suspense—Works Advances—									
Voted	..	1,959	7	— 419	..	..	..	..	1,547
Total ..	15,270	75,264	1,72,292	216	— 250	..	..	..	2,62,792
8. (*c*) i. *District Establishments.*									
Pay of establishments—Voted—									
Temporary	..	..	120	..	..	..	..	..	120
Allowances—Voted—									
Travelling allowance	..	..	67	..	..	..	..	..	67
Total ..	..	..	187	..	..	..	..	..	187
8. (*c*) iii. *Exploitation.*									
Pay of officers—									
Non-voted	16,001	5,133	914	4,025	895	..	..	..	26,968
Voted	7,093	4,387	15,181	22,938	36,000	..	..	..	85,599
Pay of establishments—Voted—									
Permanent	5,496	10,634	7,365	10,031	180	..	1,239	..	34,945
Temporary	9,464	3,863	3,323	8,958	8,755	296	1,004	17	35,680

Summary of expenditure of the different divisions of the Forest Engineering Branch for the year 1929-30—*cont.*

Budget heads.	Forest Utilization division.	Forest Engineer.	Forest Engineer-in-charge of sawmills and extraction.	Logging Engineer.	Chief Forest Engineer.	Exploitation division.	III (Working Plans) Circle.	Conservator, Fifth Circle.	Total.
ENGINEERING BRANCH—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
8. (c) iii. *Exploitation*—cont.									
Allowances—Non-voted—									
Travelling allowance	4,895	1,248	590	190	177	..	..	..	7,100
Other compensatory	4,200	..	..	..	..	..	..	..	4,200
Allowances—Voted—									
Travelling allowance	7,266	5,018	7,958	8,603	5,678	..	642	..	35,165
Fixed travelling allowance ..	..	366	349	2,368	..	..	394	..	3,477
Other compensatory	1,478	318	317	1,690	12	..	54	..	3,869
Contract contingencies	1,428	790	1,085	763	1,506	..	..	..	5,572
Non-contract contingencies—Non-voted—									
Rates and Taxes	20	..	..	..	..	..	..	..	20
Non-contract contingencies—Voted—									
Rents	264	..	458	135	4,188	..	..	..	5,045
Telephone charges	..	..	..	..	270	..	..	..	270
Books and periodicals ..	3	..	..	..	60	..	..	..	63
Miscellaneous	7	3	..	..	— 22	..	12	..	..
Supplies and services—Voted—									
Apparatus and materials ..	180	59	..	42	100	..	..	..	381
Miscellaneous	359	137	..	3,709	151	..	..	..	4,356
Total Exploitation ..	58,154	31,956	37,540	83,452	57,950	296	3,345	17	2,52,710
Non-Voted ..	25,116	6,381	1,504	4,215	1,072	..	..	..	38,288
Voted ..	33,038	25,575	36,036	59,237	56,878	296	3,345	17	2,14,422
52-*A. Forest capital outlay.*									
(b) Organization, improvement and extension of forests—									
Sowing and planting ..	1,726	..	..	..	..	..	..	..	1,726

Summary of expenditure of the different divisions of the Forest Engineering Branch for the year 1929–30—*cont.*

Budget heads.	Forest Utilization division.	Forest Engineer.	Forest Engineer-in-charge of sawmills and extraction.	Logging Engineer.	Chief Forest Engineer.	Exploitation division.	III (Working Plans) Circle.	Conservator, Fifth Circle.	Total.
ENGINEERING BRANCH—*cont.*	RS.	RS.	RS.	RS.	RS.	RS.	RS	RS.	RS.
52-A. *Forest capital outlay*—cont.									
(*b*) Organization, improvement and extension of forests—*cont.*									
Miscellaneous—									
Forest produce removed by private agency.	186	..	..	..	..	..	..	..	186
Non-voted—									
Rates and Taxes	96	..	..	..	..	..	..	..	96
Total (*b*) ..	2,008	..	..	..	..	..	..	..	2,008
(*c*) Communications and buildings—									
Roads and Bridges—									
Works in progress ..	..	1,343	..	..	..	..	..	..	1,343
New works	..	21,894	2,104	..	..	..	..	..	23,998
Buildings—									
Works in progress ..	..	5,349	..	..	..	..	..	..	5,349
New works ..	21	..	2,504	..	..	..	..	..	2,525
Total (*c*) ..	21	28,586	4,608	..	..	..	..	..	33,215
(*d*) Livestock, stores, tools and plant.									
Purchase of stores, tools and plant.	21	..	— 600	..	804	..	..	..	225
Total 52-A. Forest capital outlay.	2,050	28,586	4,008	..	804	..	..	..	35,448

ANNUAL FORM No. 39.

Summary of Revenue and Expenditure for 1929–30.

ANNUAL

Summary of Revenue and

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.
(1)	(2)	(3)	(4)	(5)	(6)
VIII. FOREST—RECEIPTS.					
(a) Timber and other produce removed from the forests by Government Agency—	RS.	RS.		RS.	RS.
Sandalwood	..	..	..	5,66,727	3,82,599
Other produce—					
Timber	1,21,524	39,902	..	4,939	11,678
Firewood and charcoal ..	3,706	6,668	..	1,476	4,006
Bamboos	79	186	..	2	..
Other minor produce ..	14,137	1	..	304	468
Total ..	1,39,446	46,757	..	6,721	16,152
Total (a) ..	1,39,446	46,757	..	5,73,448	3,98,751
(b) Timber and other produce removed from the forests by consumers or purchasers—					
Forest Department—					
Timber	60,831	64,683	..	2,026	10,412
Firewood and charcoal ..	2,18,087	1,42,566	..	64,619	2,48,073
Bamboos	1,64,858	72,730	..	1,45,667	34,711
Grazing and fodder grass..	1,13,485	1,71,896	..	1,99,202	1,24,609
Other minor produce ..	70,041	51,711	..	69,597	74,978
Total, Forest Department ..	6,27,302	5,03,586	..	4,81,111	4,92,783
Revenue Department—					
Timber	38,807	37,981	..	95,764	18,579
Firewood and charcoal ..	22,492	13,776	..	34,792	37,299
Bamboos	333	..	..	811	2
Other minor produce ..	69,192	3,29,180	..	95,623	49,182
Total, Revenue Department ..	1,30,824	3,80,937	..	2,26,990	1,05,062
(c) Drift and waif wood and confiscated forest produce.	7,200	2,412	..	768	1,373
(d) Profits from Government commercial undertakings—					
Nilambur Valley Forests ..	..	..	..	..	..
(e) Recoveries of indirect charges from Government commercial undertakings—					
Russellkonda Saw Mills ..	..	..	..	..	..
Mount Stuart Forests ..	..	..	..	..	34,125
Nilambur Valley Forests ..	..	..	..	..	..
Chenat Nair	..	..	..	..	..
Total (e) ..	..	..	..	..	34,125
(f) Recoveries of investments in Government commercial undertakings—					
Russellkonda Saw Mills ..	1,21,000	..	..	..	..
	(a) — 1,21,000				
Chenat Nair Exploitation Scheme including Olavakkot Saw Mill.	..	..	..	..	..
Nilambur	..	..	..	..	..
Total (f) ..	1,21,000	..	..	..	..
	(a) — 1,21,000				

(a) Represents March supplemental adjustments.

FORM No. 39.

Expenditure for 1929–30.

Sixth Circle.	Engineering Branch.	Forest College.	Chief Conservator.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	
						1929–30.	1928–29.
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rs.	Rs.			Rs.	Rs.	Rs.	Rs.
37,292	..	..	..	..	..	9,86,618	8,59,693
3,66,391	4,51,934	..	..	1,932	4,540	10,02,840	8,41,469
42,172	..	..	..	2,845	..	60,873	83,537
8	..	..	..	..	..	275	866
4,961	1,783	..	..	456	..	22,110	12,143
4,13,532	4,53,717	..	..	5,233	4,540	10,86,098	9,38,015
4,50,824	4,53,717	..	..	5,233	4,540	20,72,716	17,97,708
2,308	..	..	..	5,998	131	1,46,389	1,68,877
82,514	2,474	..	..	5,639	..	7,63,972	5,74,568
16,064	1,500	..	..	4,565	200	4,40,295	4,01,640
30,805	..	..	..	1,401	231	6,41,629	6,55,891
28,180	4,002	..	..	28,705	800	3,28,014	3,36,014
1,59,871	7,976	..	..	46,308	1,362	23,20,299	21,36,990
42,735	..	..	..	..	..	2,33,866	1,94,192
14,180	..	..	..	..	..	1,22,539	1,30,410
62	..	..	..	..	..	1,208	815
9,389	..	..	..	..	..	5,52,566	5,34,599
66,366	..	..	..	..	..	9,10,179	8,60,016
713	..	..	..	16	13	12,495	10,948
1,24,370	..	..	..	..	..	1,24,370	2,62,599
..	..	..	..	..	..	..	450
..	..	..	..	..	..	34,125	47,263
53,939	..	..	..	..	..	53,939	1,06,228
..	26,954	..	..	..	..	26,954	29,906
53,939	26,954	..	..	..	..	1,15,018	1,83,847
..	..	..	..	..	..	1,21,000	1,41,985
..	2,448	..	..	..	..	(a) —1,21,000 2,448	2,048
	(a)— 2,448					(a) — 2,448	
1,832	..	..	..	..	..	1,832	1,718
(a) — 1,832						(a) — 1,832	
1,832	2,448	..	..	..	..	1,25,280	1,45,751
(a) — 1,832	(a)— 2,448					(a)— 1,25,280	

Summary of Revenue and

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.
(1)	(2)	(3)	(4)	(5)	(6)
VIII. FOREST—RECEIPTS—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.
(*g*) Miscellaneous—					
Fines and forfeitures	5,795	4,824	..	3,860	3,509
Forest College	..	..	..	..	..
Rents of buildings	6,862	9,206	648	7,341	11,524
Other sources	58,165	73,854	236	86,604	73,358
Total (*g*) ..	70,822	87,884	884	97,805	88,391
Total ..	10,96,594	10,21,576	884	13,80,122	11,20,485
	(*d*) — 1,21,000	..	..	..	..
Deduct Refunds—Voted—Refunds by forest officers.	8,978	2,419	16	10,372	4,457
Grand Total ..	10,87,616	10,19,157	868	13,69,750	11,16,028
	(*d*) — 1,21,000	..	..	..	..
Added or deducted with reference to Accountant-General's actuals.	(*a*) + 5	(*a*) — 1	(*a*) + 1	(*a*) — 1	(*a*) + 1
	..	..	..	..	..
	10,87,621	10,19,156	869	13,69,749	11,16,029
	(*d*) — 1,21,000	..	..	..	..
	9,66,621	10,19,156	869	13,69,749	11,16,029
EXPENDITURE.					
8. (*b*) *Conservancy, Maintenance and Regeneration.*					
I. Forest produce removed by Government agency—Voted—					
Timber	14,880	10,137	..	1,191	11,211
Firewood and charcoal ..	195	2,229	..	..	1,525
Bamboos	..	119	..	..	..
Sandalwood	..	108	..	34,484	30,261
Grass and other minor produce.	6,179	1	..	20	119
Total (I) ..	21,254	12,594	..	35,695	43,116
II. Forest produce removed by private agency—Voted—					
Timber and other produce..	44,870	52,022	..	46,038	43,435
III. Maintenance, repairs and renewals—					
(*a*) Feed and keep of livestock.	1,755	2,369	..	29	6,332
(*b*) Renewals or replacements of stores, tools and plant.	24,421	690	93	1,905	836
(*c*) Communications and buildings—	..	..			
Forest college	..	..	..	..	..
Chenchu officer	..	452	..	..	..

(*a*) Differences due to rounding.
(*b*) Chief Conservator's office.
(*c*) Adjusted with reference to the Accountant-General's actuals.
(*d*) Represents March supplemental adjustments.

Expenditure for 1929-30—*cont.*

Sixth Circle.	Engineering Branch.	Forest College.	Chief Conservator.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	
						1929-30.	1928-29.
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rs.	Rs	Rs	Rs.	Rs.	Rs.	Rs.	Rs.
1,412	2	..	..	57	10	19,469	17,257
..	..	46,294	..	..	..	46,294	54,122
17,495	2,528	1,111	..	188	119	57,022	60,875
51,592	822	—3	..	1,150	288	3,46,066	3,90,847
70,499	3,352	47,402	..	1,395	417	4,68,851	5,23,101
9,28,414	4,94,447	47,402	..	52,952	6,332	61,49,208	59,19,396
(*d*)—1,832	(*d*)—2,448	..	..	..	..	(*d*)—1,25,280	
1,752	1,568	556	..	27	72	30,217	29,333
9,26,662	4,92,879	46,846	..	52,925	6,260	61,18,991	58,90,062
(*d*)—1,832	(*d*)—2,448	..	..	..	..	(*d*)—1,25,280	
(*a*) —4	..	..	..	..	..	(*a*) + 1	(*a*) —259
						(*b*) + 352	(*b*) 4,444
9,26,658	4,92,879	46,846	..	52,925	6,260	61,18,992	
						(*b*) + 352	
						61,19,344	58,94,247
(*d*)—1,832	(*d*)—2,448	..	..	..	..	(*d*)—1,25,280	
9,24,826	4,90,431	46,846	..	52,925	6,260	59,93,712	
						(*b*) + 352	
						59,94,064	
2,71,980	2,35,708	..	..	886	2,277	5,48,270	4,25,808
14,004	.. ..	..	.. ..	.. 506	.. ..	18,459	26,747
3	..	..	..	..	4	126	472
3,255	..	..	..	..	..	68,108	54,972
3,206	..	..	..	83	..	9,608	6,048
2,92,448	2,35,708	..	..	1,475	2,281	6,44,571	5,14,047
11,062	..	..	..	2,080	583	2,00,090	1,76,704
66,559	..	..	— 12	..	..	77,032	77,854
5,337	19,116	..	..	15	..	52,413	43,719
..	..	4,571	..	..	..	4,571	2,586
..	..	..	..	..	..	452	435

Summary of Revenue and

Budget heads. (1)	First Circle. (2)	Second Circle. (3)	Third Circle. (4)	Fourth Circle. (5)	Fifth Circle. (6)
EXPENDITURE—*cont.*	RS.	RS.	RS.	RS.	RS.
8. (*b*) *Conservancy, Maintenance and Regeneration*—cont.					
III. Maintenance, repairs and renewals—*cont.*					
(*c*) Communications and buildings—*cont.*					
Roads and bridges	7,859	4,770	..	18,756	30,280
Buildings..	18,918	8,239	— 23	14,885	10,872
Non-voted—Rates and taxes ..	229	272	..	832	263
Other works	618	288	..	417	400
Total III ..	53,800	17,080	70	36,824	48,983
IV. Conservancy and Regeneration—					
(*a*) Maintenance of boundaries ..	998	556	..	1,414	250
(*b*) Forest Surveys	..	663	..	..	..
(*c*) Regeneration	5,524	1,892	..	6,036	1,028
(*d*) Fire protection..	14,484	4,958	..	5,405	6,182
(*e*) Other works	7,050	1,215	..	268	2,128
Total IV ..	28,056	9,284	..	13,123	9,588
V. Miscellaneous—		..			
Rates and Taxes—Non-voted ..	148	.. ..	..	23	238
Law charges	8	3	..	15	15
Drift waifwood and confiscated produce	364	97	..	35	14
Rent of leased and part-owned forests.	3,082	..	..	287	..
Grants in aid—Recurring—Voted.	..	..	..	..	..
Miscellaneous—					
Honoraria—Voted	118	30	..	238	145
Supplies and Services—Voted—Miscellaneous.	..	221	..	3,518	198
Other charges	..	.. ..	.. ..	..	..
Total VI ..	3,710	351	..	4,116	610
VI. Suspense—Works—Advances ..	— 21	49	— 5	..	57
Grand Total ..	1,51,669	91,380	64	1,35,796	1,45,789
Added or deducted with reference to Accountant-General's actuals.	..	+ 2	..	+ 3	— 1
8. (*c*) *District Establishments.*					
Pay of officers—Non-voted	66,684	73,222	— 729	60,705	95,044
Pay of officers—Voted	45,311	25,191	..	45,790	1,200
Pay of Establishments—Voted—					
Permanent	2,38,750	2,29,721	34	2,27,829	1,87,565
Temporary	7,239	4,997	..	8,495	5,178
Allowances—Non-voted—					
Travelling allowance..	14,824	11,936	..	7,941	22,415
Other Compensatory..	..	..	..	..	..
Cost—passages, etc.	..	..	..	..	1,519

Expenditure for 1929–30—*cont.*

Sixth Circle. (7)	Engineering Branch. (8)	Forest College. (9)	Chief Conservator. (10)	Parlakimedi Maliahs. (11)	Golgonda Agency. (12)	Total. 1929-30. (13)	Total. 1928-29. (14)
RS.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
20,788	5,676	..	..	..	..	88,129	81,566
11,323	745	..	..	199	277	65,435	63,963
908	..	108	..	..	..	2,612	..
1,848	..	..	..	100	..	3,671	4,044
1,06,763	25,537	4,679	— 12	314	277	2,94,315	2,74,167
1,193	..	..	..	..	..	4,411	4,384
..	..	..	6,900	..	..	7,563	616
31,602	..	..	..	131	92	46,305	35,999
10,826	..	..	..	582	71	42,508	39,942
1,404	..	..	..	..	22	12,087	10,648
45,025	..	..	6,900	713	185	1,12,874	96,589
2,582	..	..	..	..	..	2,991	4,281
..	..	..	..	..	..	41	517
51	..	..	..	..	..	551	352
..	..	..	..	..	..	3,369	524
5,396	..	..	..	..	..	5,396	5,311
50	..	..	..	..	..	581	829
2,130	..	..	..	..	..	6,067	5,018
— 179	..	..	178	..	..	— 1	2,431
10,030	..	..	178	..	..	18,995	19,328
702	1,547	..	..	..	..	2,329	— 3,842
4,66,030	2,62,794	4,679	6,888	4,582	3,326	12,72,997	10,71,886
— 1	— 3	..	..	..	..	..	..
79,043	26,968	21,613	42,908	..	..	4,66,187	3,95,410
43,992	85,599	22,105	2,843	7,209	..	2,79,240	2,68,684
2,02,241	34,945	12,928	24,259	15,251	1,994	11,75,478	12,12,790
6,777	35,800	1,721	* 8,698	799	1,928	81,632	77,241
17,278	7,100	4,361	4,602	..	..	90,457	86,171
..	4,200	..	1,560	..	..	5,760	5,922
5,130	..	..	7,993	..	..	14,642	15,813

* Expenditure on establishments employed on Mettur area.

Summary of Revenue and

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.
(1)	(2)	(3)	(4)	(5)	(6)
EXPENDITURE—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.
8. (*c*) *District Establishments*—cont.					
Allowances—Voted—					
Travelling allowance	43,322	35,152	..	30,936	30,104
Fixed travelling allowance	11,255	9,592	..	11,292	7,787
Other compensatory	3,708	4,655	9	3,592	2,993
Grants-in-aid	..	..	..	..	..
Honoraria—Voted	..	..	..	..	..
Contract contingencies—Voted ..	16,152	16,340	..	13,615	13,489
Non-contract contingencies—Non-voted—					
Rates and taxes	1,672	669	..	324	312
Non-contract contingencies—Voted—					
1. Pay of menials	..	..	..	..	..
2. Rents	6,413	8,672	..	6,896	6,119
3. Electric current	..	..	..	..	..
4. Telephone charges	..	..	..	..	..
5. Books and periodicals	..	..	..	..	..
6. Miscellaneous	1,591	665	..	961	669
Customs duty—Voted	..	..	..	..	..
Supplies and services—Voted—					
1. Clothing and equipment	..	..	..	..	..
2. Apparatus and materials	1,003	1,079	..	502	516
3. Books and periodicals	..	..	..	..	..
4. Miscellaneous	..	..	..	..	..
5. Charges payable to Governments, Departments and others.	414	756	..	4,096	1,258
Total ..	4,58,338	4,22,647	..	4,22,969	3,76,168
Added or deducted with reference to Accountant-General's actuals.	— 2	+ 1	— 686	..	+ 39
Grants-in-aid—Recurring	..	..	..	..	..
52-*A. Capital outlay.*					
(*b*) Conservancy and works—					
II. Forest produce removed by private agency.	..	..	..	..	..
IV. Rent of leased and part-owned forest.	..	..	..	..	2,500
V. Live-stock, stores, tools and plant—					
Purchase of cattle	4,086	46	..	..	2,781
Feed and keep of live-stock ..	..	..	..	..	1,312
Purchase of stores, tools and plant.	1,818	135	835	2,264	1,151
Total ..	5,904	181	835	2,264	7,744
VI. Works—Voted—					
Forest College—					
Works in progress	..	..	..	..	..
Roads and bridges—					
Works in progress	3,211	610	..	..	325
New works	7,577	2,907	..	6,025	5,804

Expenditure for 1929–30—*cont.*

Sixth Circle.	Engineering Branch.	Forest College.	Chief Conservator.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	
						1929-30.	1928-29.
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
46,670	35,232	..	1,985	3,625	908	2,27,834	2,56,399
10,340	3,477	..	..	706	225	54,674	56,415
7,864	3,869	..	..	60	..	26,741	30,609
..	..	400	..	..	..	400	400
..	..	855	..	..	..	855	855
12,568	5,572	..	2,565	1,504	266	82,171	78,782
192	20	2,184	620	4	29	6,026	5,112
..	..	..	..	..	..	..	2,121
4,961	5,045	2,193	2,976	607	336	44,218	73,402
..	..	..	993	..	..	993	..
..	270	175	280	..	..	725	450
4	63	..	2,613	..	..	2,680	124
421	..	4,519	50	1	24	8,901	6,865
..	..	..	3,273	..	..	3,273	..
..	..	..	28,529	..	..	28,529	..
850	381	4,288	..	51	..	8,670	11,411
..	..	192	..	..	..	192	216
..	4,356	2,838	..	..	..	7,194	24,517
3,430	..	3,951	18,570	630	..	33,105	..
4,41,761	2,52,897	84,323	1,55,317	30,447	5,710	26,50,577	26,09,709
+ 8	..	..	..	..	..	— 640	+ 302
						..	(*b*) + 8,174
						(*a*) 26,49,937	26,18,185
..	..	400	..	..	..	..	..
235	186	..	..	..	..	421	480
..	..	..	..	..	..	2,500	1,950
6,303	..	..	12	..	..	13,228	18,783
117	..	..	..	..	..	1,429	2,794
3,579	225	..	5,290	..	6	15,303	19,794
10,234	411	..	5,302	..	6	32,880	49,085
..	..	..	..	..	..	..	189
5,594	1,343	..	..	..	..	11,083	10,229
4,158	23,998	..	..	..	..	50,469	73,618

(*a*) Includes figures relating to general direction and the Golgonda agency.
(*b*) Chief Conservator's office.

Summary of Revenue and

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.
(1)	(2)	(3)	(4)	(5)	(6)
EXPENDITURE—*cont.*	Rs.	Rs.	Rs.	Rs.	Rs.
52-A. Capital outlay—cont.					
VI. Works—Voted—*cont.*					
Buildings—					
Works in progress	1,932	4,041	..	4,028	629
New works	9,178	10,965	..	13,386	8,471
Other works—					
Works in progress	411	999	..	2,501	..
New works	307	1,105	..	1,851	340
Total	22,616	20,627	..	27,791	15,569
VII. Organization, improvement and extension of forests—	..	..	..	..	..
Demarcation	3,079	..	..	325	1,010
Cost of forest settlement, etc.	..	..	..	..	..
Surveys—Local	11,397	..	..	580	..
Working plans	..	..	11,856	..	..
Sowing and planting	858	..	..	50	6,842
Protection from fire	..	..	..	..	135
Other works	..	..	..	556	327
Total	15,334	..	11,856	1,511	8,314
		..			
VIII. Miscellaneous—					
Non-contract contingencies—Non-voted—					
Rates and taxes	..	..	..	.	..
General—Miscellaneous	..	..	..	..	..
Total	..	..	..	..	..
Grand Total	43,854	20,808	12,691	31,566	31,627
Added or deducted with reference to Accountant General's actuals.			+43		
	..	..	..	..	..
52-A. b. Regeneration.					
Pay of officers—					
Non-voted	..	..	56,823	..	..
Voted	..	..	19,746	..	..
Pay of establishments—Voted—					
Permanent	..	..	26,523	..	2,829
Temporary	..	..	5,322	..	211
Allowances—Non-voted—					
Travelling allowance	..	..	18,743	..	..
Cost of passages, etc.	..	..	864	..	..
Allowances—Voted—					
Travelling allowance	..	..	17,086	..	555
Other compensatory	..	..	1,684	..	43
Fixed travelling allowance	..	..	2,377	..	328
Total	..	..	1,49,168	..	3,966
Contract contingencies—Voted	..	..	3,134	..	..
Non-contract contingencies—Non-voted—					
Rates and taxes	..	..	..	..	..

Expenditure for 1929-30—*cont.*

Sixth Circle	Forest Engineering Branch.	Forest College.	Chief Conservator.	Parlakimedi Maliahs.	Golgonda Agency.	Total.	
						1929-30.	1928-29.
(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Rs.	Rs.		Rs.		Rs.	Rs.	Rs.
6,206	5,349	..	..	..	..	22,185	35,336
22,404	2,525	..	..	..	..	66,929	84,554
577	..	..	..	..	..	4,488	1,496
853	..	..	..	..	..	4,456	6,320
39,792	33,215	..	..	..	..	1,59,610	2,11,742
1,371	..	..	..	..	878	6,663	7,081
..	..	..	..	..	..	..	..
..	..	..	..	..	..	..	..
..	..	..	..	..	..	11,977	4,425
184	..	..	..	..	..	12,040	713
21,656	1,726	..	..	..	..	31,132	30,004
3,550	..	..	..	..	..	3,685	4,662
250	..	..	..	..	..	1,133	2,200
27,011	1,726	..	..	..	878	66,630	49,085
..	96	..	..	..	..	96	24
..	..	..	..	..	..	..	492
..	96	..	..	..	..	96	516
77,037	35,448	..	5,302	..	884	2,59,217	3,05,144
— 16	— 1					+ 26	— 1
							(a) 3,516
..	..	..	..	..	..	2,59,243	3,08,659
5,265	..	..	..	..	..	62,088	69,079
2,464	..	..	..	..	..	22,210	15,038
12,645	..	..	..	..	..	41,997	34,312
2,730	..	..	..	..	..	8,263	3,197
1,059	..	..	..	..	..	19,802	16,482
..	..	..	..	..	..	864	5,624
1,703	..	..	..	..	..	19,344	14,199
145	..	..	..	..	..	1,872	1,783
1,009	..	..	..	..	..	3,714	1,628
27,020	..	..	..	..	..	1,80,154	1,61,342
269	..	..	..	..	..	3,403	2,835
..	..	..	..	..	..	..	..

(a) Chief Conservator's office.

Summary of Revenue and

Budget heads.	First Circle.	Second Circle.	Third Circle.	Fourth Circle.	Fifth Circle.
(1)	(2)	(3)	(4)	(5)	(6)
EXPENDITURE—*cont.*					
52-A. (b) Regeneration—cont.	RS.		RS.		RS.
Non-contract contingencies—Voted—					
Rents	..	..	762	..	..
Telephone charges	..	..	..	..	..
Books and periodicals	..	..	12	..	..
Miscellaneous	..	..	83	..	..
Total ..	..	..	3,991	..	..
Supplies and services—Voted—					
Apparatus and materials	..	..	156	..	120
Miscellaneous	..	..	298	..	..
Total ..	..	..	454	..	120
Grand Total ..	..	..	1,53,613 + 1	..	4,086
52-A. d. Investments in Government commercial undertakings.	— 1,21,000	..	..	..	— 24,625
Deduct—Recoveries of investments in Government Commercial undertakings.	..	..	.. ..	..	— 24,660 + 24,624
	..	..	..	..	..

Abs

VIII Forest—Receipts—					
8. *Expenditure.*					
(a) General direction—Chief Conservator's Office.	..	..	..	..	..
(b) Conservancy and works ..	..	..	..	..	..
(c) i, iii and iv—District establishments including the Engineering branch and Forest College.	..	..	..	..	..
(c) ii. Forest Research Officer.	..	..	..	..	..
(c) v. Chenchu Officer ..	..	..	..	..	..
(e) Losses in Government Commercial undertakings.	..	..	..	..	..
Expenditure in England.	..	..	..	..	..
20. Interest—Interest on deposits from depreciation reserve of Government commercial undertakings.	..	..	..	..	..
52. A. *Capital outlay on forests.*					
(b) Conservancy and works ..	..	..	..	..	..
(c) ii. Regeneration	..	..	..	..	..
(d) Investments in Government commercial undertakings.	..	..	..	..	..
Total ..	..	..	..	..	..
Deduct—Recoveries of investments on Government commercial undertakings.	..	..	..	..	..
Grand Total ..	..	..	..	..	..

Expenditure for 1929-30—*cont.*

Sixth Circle. (7)	Forest Engineering Branch. (8)	Forest College. (9)	Chief Conservator. (10)	Parlakimedi Maliahs. (11)	Golgonda Agency. (12)	Total. 1929-30. (13)	Total. 1928-29. (14)
RS.	RS.					RS.	RS.
..	..	..	..	..	..	762	3,414
180	..	..	..	..	..	180	222
..	..	..	..	..	..	12	39
35	..	..	..	..	..	118	79
484	..	..	..	..	..	4,475	6,589
..	..	..	..	..	..	276	222
..	..	..	..	..	..	298	669
..	..	..	..	..	..	574	891
27,504	..	..	..	..	..	1,85,203 + 1	1,68,822
27,321	— 2,448	..	..	..	..	27,321	..
— 1,832	— 45,321	..	..	..	..	— 1,95,226	..
						— 1,67,905	..
— 17,866	— 45,321	..	..	..	..	— 87,847	..
	+ 45,321					+ 69,945	
..	..	..	..	..	..	59,94,064	58,94,247

tract.

..	..	..	..	..	..	1,38,067	1,21,815
..	..	..	..	..	..	12,72,997	10,78,857
..	..	..	..	..	..	25,18,629	26,18,185
..	..	..	..	..	..	44,933	40,850
..	..	..	..	..	..	26,470	26,177
..	..	..	..	..	..	69,946	1,05,268
..	..	..	..	..	..	1,93,881	1,74,987
..	..	..	..	..	..	..	164
..	..	..	..	..	..	2,59,243	3,08,659
..	..	..	..	..	..	1,85,204	1,68,821
..	..	..	..	..	..	— 1,67,905	30,288
..	..	..	..	..	..	2,76,542	46,74,071
..	..	..	..	..	..	— 17,902	— 39,522
..	..	..	..	..	..	45,23,563	45,84,549

ANNUAL FORM NO. 40.

Forest Department, Madras Presidency.

Outstandings and liabilities on account of contractors and disbursers for the year 1929-30.

Division.	Department debtor.			Department creditor.			Balance due	
	At commencement of the year.	Recoveries in cash and value of supplies and work done during the year.	At close of the year.	At commencement of the year.	Payments made during the year.	At close of the year.	To department (outstandings).	By department (liabilities).
First Circle.		RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	
Conservator	..	4,553 9 6	4,553 9 6	15 9 9	4,539 4 0	4,554 13 9	1 4 3	..
Ganjam	..	1,10,782 6 2	1,10,782 6 2	1,687 7 1	1,10,046 7 4	1,11,733 14 5	951 8 3	..
Vizagapatam	..	36,707 11 8	36,707 11 8	137 12 7	36,961 10 0	37,099 6 7	391 10 11	..
Lower Godavari	..	83,841 10 1	83,841 10 1	1,078 7 9	83,808 12 4	84,887 4 1	1,045 10 0	..
Parlakimedi	..	20,480 10 8	20,480 10 8	309 11 7	21,439 13 9	21,749 9 4	1,268 14 8	..
Golgonda Agency ..	..	9,780 8 0	9,780 8 0	126 14 8	9,853 2 0	9,980 0 8	199 8 8	..
Upper Godavari	..	84,162 6 11	84,162 6 11	550 15 4	83,921 8 9	84,472 8 1	310 1 2	..
Guntur	..	50,486 11 5	50,486 11 5	72 1 10	52,871 13 8	52,943 15 6	2,457 4 1	..
Nellore	..	73,759 5 10	73,759 5 10	66 8 5	73,893 8 6	73,960 0 1 1	200 11 1	..
Total ..	..	4,74,555 0 3	4,74,555 0 3	4,045 9 0	4,77,336 0 4	4,81,381 9 4	6,826 9 1	..
Second Circle.								
Conservator	..	1,354 6 3	1,354 6 3	22 4 4	1,361 10 0	1,383 14 4	29 8 1	..
East Kurnool	..	70,343 4 1	70,343 4 1	419 4 11	70,561 10 4	70,980 15 3	637 11 2	..
South Kurnool	..	66,041 12 4	66,041 12 4	110 7 6	65,931 12 2	66,042 3 8	0 7 4	..
West Kurnool	..	83,173 0 6	83,173 0 6	962 4 9	82,428 11 9	83,391 0 6	218 0 0	..
Anantapur	..	46,303 7 10	46,303 7 10	168 14 0	46,379 10 3	46,548 8 3	245 0 5	..
North Cuddapah	..	51,898 3 9	51,898 3 9	24 3 7	52,090 11 6	52,114 15 1	216 11 4	..
South Cuddapah	..	58,028 11 2	58,028 11 2	49 9 1	58,137 6 0	58,186 15 1	158 3 11	..
Total ..	..	3,77,142 13 11	3,77,142 13 11	1,757 0 2	3,76,891 8 0	3,78,648 8 2	1,505 10 3	..

Third Circle.								
Conservator	..	22,323 5 9	22,323 5 9	243 5 9	22,861 13 9	23,105 3 6	781 13 9	..
Forest research	..	13,150 4 1	13,150 4 1	188 1 10	13,077 3 9	13,265 5 7	115 1 6	..
Working Plans—								
Mangalore	..	1,847 15 0	1,847 15 0	0 8 0	1,881 10 0	1,882 2 0	34 3 0	..
Ganjam	..	7,468 4 6	7,468 4 6	93 0 0	7,570 0 0	7,663 0 0	194 11 6	..
Coimbatore ..	..	1,074 9 0	1,074 9 0	13 8 0	1,090 0 0	1,103 8 0	28 15 0	..
Nilambur	..	..	..	..	..	..	..	..
Wynaad	..	..	..	..	..	..	..	..
Mt. Stuart and Logging Engineer.	..	66,152 4 4	66,152 4 4	1,494 7 0	64,765 1 8	66,259 8 8	107 4 4	..
Total ..	..	1,12,016 10 8	1,12,016 10 8	2,032 14 7	1,11,245 13 2	1,13,278 11 9	1,262 1 1	..
Fourth Circle.								
Conservator	..	626 11 6	626 11 6	23 0 0	654 5 2	677 5 2	50 9 8	..
Vellore	..	1,50,585 12 10	1,50,585 12 10	74 3 7	1,51,007 15 8	1,51,082 3 3	496 6 5	..
Chittoor	..	67,220 11 4	67,220 11 4	330 15 9	66,991 11 9	67,322 11 6	102 0 2	..
Salem, North	..	79,684 9 7	79,684 9 7	397 0 11	79,664 15 6	80,062 0 5	377 6 10	..
Do. Central	..	65,406 12 7	65,406 12 7	169 15 5	65,524 0 3	65,693 15 8	287 3 1	..
Do. South	..	53,238 8 3	53,238 8 3	60 11 3	53,399 2 10	53,459 14 1	221 5 10	..
Total ..	..	4,16,763 2 1	4,16,763 2 1	1,055 14 11	4,17,242 3 2	4,18,298 2 1	1,535 0 0	..
Fifth Circle.								
Conservator	..	1,575 9 6	1,575 9 6	50 11 5	1,576 0 0	1,626 11 5	54 1 11	..
Madura	..	1,10,371 8 10	1,10,371 8 10	382 8 1	1,10,056 10 0	1,10,884 4 11	513 2 2	..
Tinnevelly	..	62,161 15 9	62,161 15 9	564 1 8	61,975 2 6	62,539 4 2	377 4 5	..
Kollegal	..	76,087 9 9	76,087 9 9	125 4 0	76,312 3 10	76,437 3 10	349 10 1	..
Coimbatore, North ..	..	88,215 10 2	88,215 10 2	566 9 4	87,926 14 4	88,493 7 8	277 13 6	..
Do. South ..	..	48,790 10 9	48,790 10 9	1,568 1 8	47,696 15 6	49,265 1 2	474 6 5	..
Tanjore	..	..	..	..	..	..	..	..
Total ..	..	3,87,203 0 9	3,87,203 0 9	3,702 9 1	3,85,543 14 2	3,89,246 7 3	2,043 6 6	..

Outstandings and liabilities on account of contractors and disbursers for the year 1929-30—*cont.*

District.	Department debtor.			Department creditor.			Balance due	
	At commencement of the year.	Recoveries in cash and value of supplies and work done during the year.	At close of the year.	At commencement of the year.	Payments made during the year.	At close of the year.	To department (outstandings).	By department (liabilities).
Sixth Circle.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Conservator	..	9,545 9 8	9,545 9 8	277 0 1	9,347 15 0	9,624 15 1	79 5 5	..
Nilgiris	..	88,516 15 3	88,516 15 3	128 7 11	88,769 6 0	88,897 13 11	380 14 8	..
Wynaad	..	1,84,777 6 5	1,84,777 6 5	1,281 11 4	1,84,608 7 7	1,85,890 2 11	1,112 12 6	..
North Mangalore ..	..	73,488 10 1	73,488 10 1	108 14 8	74,497 2 10	74,606 1 6	1,117 7 5	..
South Mangalore ..	..	1,29,050 0 9	1,29,050 0 9	139 8 6	1,29,391 6 6	1,29,530 15 0	480 14 3	..
Palghat	..	1,63,767 12 11	1,63,767 12 11	603 3 0	1,64,700 0 5	1,65,303 3 5	1,535 6 6	..
Nilambur	..	....	....	....	....	....	....	..
Total ..	..	6,49,146 7 1	6,49,146 7 1	2,538 13 6	6,51,314 6 4	6,53,853 3 10	4,706 12 9	..
Forest Engineer ..	..	1,10,276 0 5	1,10,276 0 5	73 11 1	1,15,522 0 3	1,15,595 11 4	5,319 10 11	..
Saw Mills and Extraction division.	..	1,66,970 14 6	1,66,970 14 6	3,164 5 8	1,65,588 13 11	1,68,753 3 7	1,782 5 1	..
Chenat Nair	..	733 6 0	733 6 0	733 6 0	....	733 6 0	....	..
Chief Forest Engineer ..	..	50 0 0	50 0 0	....	50 0 0	50 0 0	....	..
Total ..	..	2,78,030 4 11	2,78,030 4 11	3,971 6 9	2,81,160 14 2	2,85,132 4 11	7,102 0 0	..
Forest Utilization division.	..	26,991 7 4	26,991 7 4	68 15 6	27,333 8 3	27,402 7 9	411 0 5	..
Forest College	..	59,855 14 9	59,855 14 9	2,181 12 3	59,024 13 0	61,206 9 3	1,350 10 6	..
Grand Total, Presidency.	..	27,81,704 13 9	27,81,704 13 9	21,354 15 9	27,87,093 0 7	28,08,448 0 4	26,743 2 7	..

ANNUAL FORM No. 41

Forest Department, Madras Presidency.

Revenue received and outstandings on account of revenue during the year 1929-30.

Annual Form No. 41.

Forest Department, Madras Presidency.

Revenue received and outstandings on account of revenue during the year 1929-30.

District.	Particulars.	Outstandings at commencement of the year.	Value of sales and other revenue during the year.	Total.	Amount realized during the year.	Balance due to the department at the end of the year.
		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
First Circle.						
Direction	Timber and other produce,	...	53,633 0 0	53,633 0 0	53,633 0 0	..
Ganjam	Do.	22,574 7 9	1,18,651 8 3 (a) + 1,21,000 0 0	1,41,226 0 0 (a) + 1,21,000 0 0	1,37,241 0 0 (a) + 1,21,000 0 0	3,985 0 0
Vizagapatam	Do.	2,556 0 0	51,448 2 0	54,004 2 0	53,341 0 0	663 2 0
Godavari, Upper	Do.	2,733 7 0	1,52,228 14 0	1,54,962 5 0	1,54,961 0 0	1 5 0
Do. Lower	Do.	7,231 6 11	3,12,114 9 9	3,19,346 0 8	3,09,923 0 0	9,423 0 8
Guntur	Do.	17,400 12 0	1,67,807 0 5	1,85,207 12 5	1,56,136 0 0	29,071 12 5
Nellore	Do.	315 0 0	1,58,968 6 0	1,59,283 6 0	1,01,381 0 0	57,902 6 0
	Total ..	52,811 1 8	10,14,851 8 5 (a) + 1,21,000 0 0	10,67,662 10 1 + 1,21,000 0 0	(c) 9,66,616 0 0 + 1,21,000 0 0	(b) 1,01,046 10 1
Second Circle.						
Direction	Timber and other forest produce.	..	162 4 0	162 4 0	162 4 0	..
Anantapur	Do.	1,87,365 14 3	(a) 4,04,008 7 2	(a) 5,91,374 5 5	(a) 3,97,040 0 11	1,94,334 4 6
Kurnool, East	Do.	6,936 9 0	60,769 3 0	67,705 12 0	61,204 15 0	6,495 13 0
					(d) 5 0 0	
Do. South	Do.	1,018 0 0	1,37,393 5 1	1,38,411 5 1	1,38,053 5 1	358 0 0
Do. West	Do.	39,188 10 5	1,55,661 4 5	1,94,849 14 10	1,80,759 1 11	14,090 12 11
Cuddapah, North	Do.	13,163 2 8	88,518 2 8	1,01,681 5 4	85,497 5 4	16,184 0 0
Do. South	Do.	98,199 3 1	(b) 1,71,866 7 9	(b) 2,70,065 10 10	(b) 1,57,417 7 11	1,12,648 2 11
	Total ..	3,45,871 7 5	10,18,379 2 1	13,64,250 9 6	(c) 10,20,134 8 2 (d) † 5 0 0	* 3,44,111 1 4
Fourth Circle.						
Direction	Timber and other forest produce.	..	(a) 17 0 0	17 0 0	17 0 0	..
Chittoor	Do.	...	93,451 7 1	93,451 7 1	93,446 11 1	4 12 0
Vellore	Do.	993 12 0	5,34,448 13 4	5,35,442 9 4	5,34,418 9 4	1,024 0 0
Salem, North	Do.	...	3,77,562 9 1	3,77,562 9 1	3,77,183 9 1	379 0 0
Do. Central	Do.	112 2 0	2,06,807 5 2	2,06,919 7 2	2,06,764 7 2	155 0 0
Do. South	Do.	300 0 0	1,62,185 3 3	1,62,485 3 3	1,61,544 10 3	940 9 0
	Total ..	1,405 14 0	13,74,472 5 11	13,75,878 3 11	(b) 13,73,374 14 11	2,503 5 0

Fifth Circle.							
Direction	Timber and other forest produce.	..	31 0 0	31 0 0	31 0 0	..	
Kollegal	Do.	(a) 10,997 0 0	2,32,655 12 2	2,43,652 12 2	(j) 2,38,702 15 2	(f) 4,949 13 0	
Coimbatore, North ..	Do.	45,927 6 0	3,48,788 3 5	3,94,715 9 5	(h) 3,38,289 4 5 (b) 7,890 10 0	48,535 11 0	
Do. South ..	Do.	7,744 6 0 (e) 90,260 0 0	1,15,220 3 10 (e) 1,28,327 3 0	1,22,964 9 10 (e) 2,18,587 3 0	(m) 99,930 15 10 (e) 1,20,866 3 0	(g) 23,033 10 0 (e) 97,721 0 6	
Madura	Do.	1,13,454 14 11	2,45,912 8 7	3,59,367 7 6	2,53,572 6 8 (c) 2,179 2 0	(d) 1,03,615 14 10	
Tinnevelly	Do.	1,359 4 0	(i) 1,74,108 7 5	(i) 1,75,467 11 5	(i) 1,72,538 11 5	2,929 0 0	
Tanjore	Do.	..	19,967 1 10	19,967 1 10	19,967 1 10	..	
..	Total ..	2,69,742 14 11	12,65,010 8 3	15,34,753 7 2	(k) 12,43,898 10 4 (b) + 7,890 10 0 (c) + 2,179 2 0 12,53,968 6 4	2,80,785 0 10	

Note for First Circle.
(a) Recovery of investments in Government Commercial undertakings in Ganjam district.
(b) Out of this, Rs. 14,751-4-5 fell due within the year.
(c) Excludes revenue realized in Parlakimedi Maliahs (Rs. 52,925) and Golgonda Agency (Rs. 6,260) but includes refunds (Rs. 8,978).
* Out of this amount, Rs. 3,44,111-1-4, an amount of Rs. 3,25,648 falls due after 31st March 1930.

Note for Second Circle.
(a) Includes sandalwood revenue of Rs. 363 realized in the Fourth Circle.
(b) Includes sandalwood revenue of Rs. 615 realized in the Fourth Circle.
(c) Includes refunds (Rs. 2,419).
(d) This amount was written off in Conservator's No. A-1-485/28, dated 19th March 1929 (Mis. S. No. 28 of 1929) as it was proved to be irrecoverable.

Note for Fourth Circle.
(a) Excludes sandalwood revenue relating to Tinnevelly (Rs. 5,769); South Cuddapah (Rs. 615), Bellary (Rs. 123) and Anantapur (Rs. 240) credited in the Second Circle and now adjusted in the Fifth and Second Circle; respectively. (b) Refunds (Rs. 10,372) not deducted.

Note for Fifth Circle.
(a) Out of this, Rs. 1,429-8-0 although realized in March 1929 was not accounted for in 1928-29.
(b) Written off in Chief Conservator's No. 311, dated 12th September 1929.
(c) Written off.
(d) Out of this, Rs. 1,618-15-8 fell due within the year and of Rs. 10,990 relating to the coupe sale amount of contractor A. Subba Pillai, only Rs. 4,272-3-7 with cost is due from him, Rs. 22-5-9 wrongly shown as outstanding in Form 10.
(e) Relates to Valparai Sleeper project.
(f) Of this, Rs. 315-13-0 fell due within the year.
(g) Of this, Rs. 31-1-0 fell due within the year.
(h) Excludes sandalwood revenue relating to the Nilgiris (Rs. 3,088) credited in the Fifth Circle and now adjusted in the Sixth Circle.
(i) Includes sandalwood revenue (Rs. 5,769) relating to Tinnevelly district credited in the Fourth Circle and now adjusted in the Fifth Circle.
(j) Includes sandalwood revenue relating to Kollegal credited to direction (Rs. 1,55,525) and revenue realized by Forest Utilization Officer on account of sale of tusks (Rs. 490),
(k) Refunds not deducted (Rs. 4,457).

Revenue received and outstandings on account of revenue during the year 1929-30—*cont.*

District.	Particulars.	Outstandings at commencement of the year.	Value of sales and other revenue during the year.	Total.	Amount realized during the year.	Balance due to the department at the end of the year.
Sixth Circle.		Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.
Mangalore, North ..	Timber and other forest produce.	34,676 15 9	83,441 15 0	1,18,118 14 9	1,03,773 0 0	14,345 14 9
Do. South ..	Do.	78,141 14 1	1,72,785 15 0	2,50,927 13 1	(*f*) 1,90,143 0 0	60,784 13 1
Wynaad	Do.	73,207 14 3	4,00,062 15 9	4,73,270 14 0	(*g*) 3,55,990 0 0	1,17,280 14 0
The Nilgiris	Do.	17,245 6 9	1,76,178 2 1	1,93,423 8 10	(*h*) 1,66,829 0 0 (*a*) + 449 0 0	26,145 8 10
Palghat	Do.	79,160 12 0	2,32,269 10 0	3,11,430 6 0	(*b*) 1,91,204 0 0	(*c*) 1,20,226 6 0
Nilambur	Do.	..	1,94,029 0 0	1,94,029 0 0	(*i*) + 1,94,029 0 0	..
Direction	Do.	..	973 0 0	973 0 0	(*e*) 973 0 0	..
	Total ..	2,82,432 14 10	12,59,740 9 10	15,42,173 8 8	12,02,941 0 0 (*a*) + 449 0 0	(*d*) 3,38,783 8 8
	Grand Total ..	9,52,264 4 10	59,30,622 2 6	68,82,886 7 4	58,05,131 13 5	10,67,229 9 11
Parlakimedi Maliahs ..	..	..	57,787 8 6	57,787 8 6	52,925 0 6	4,862 8 0
	Total ..	9,52,264 4 10	59,88,409 11 0	69,40,673 15 10	58,58,056 13 11	10,72,092 1 11
Add—						
Golgonda Agency ..	..	..	..	..	6,260 0 0	
Working Plan Circle ..	..	..	..	..	869 0 0	
Forest College	..	..	..	..	46,846 0 0	
Chief Conservator ..	..	..	..	..	352 0 0	
	Total ..	..	..	..	59,12,383 13 11	
Deduct—Refunds	..	..	..	..	(*a*) — 18,148 0 0	
					58,94,235 13 11	
					(*b*) + 99,829 0 0	(*c*) + 1,19,766 10 5
..	Grand total, Presidency.				59,94,064 13 11	11,91,858 12 4

Note for Sixth Circle.

(*a*) Amount written off. (*b*) Does not include Rs. 64,239 realized in the Exploitation division but includes Rs. 307 collected by the Forest Utilization Officer. (*c*) Does not include Rs. 1,19,766-10-5 being the outstandings of Exploitation division furnished by the Forest Engineer, Coimbatore. (*d*) Of the total outstandings, Rs. 1,71,064-6-8 were due within the year. (*e*) Excludes revenue relating to Wynaad (Rs. 217), South Mangalore (Rs. 2,070) and Nilambur divisions (Rs 865—Beypore tope). (*f*) Includes revenue realized by Forest Utilization Officer (Rs. 1,05,281) and Forest Engineer, Parappa Saw Mill (Rs. 987), and by direction (Rs. 2,070). (*g*) Includes revenue realized by Forest Utilization Officer (Rs. 1,57,636) and Forest Engineer, Chedleth Saw Mill (Rs. 2,151), and by direction (Rs. 217). (*h*) Includes revenue realized by Forest Utilization Officer (Rs. 32), by the Fifth Circle (Rs. 3,038) and minor forest produce collected in other divisions (Rs. 625). (*i*) Includes revenue realized by Forest Utilization Officer in Beypore Tope (Rs. 4,419) and by direction (Rs. 865).

(*a*) Refunds not taken into account in the figures for the Fourth, Fifth and Sixth Circles and the Engineering Branch.

(*b*) Added to represent the credit taken in the Forest Engineering Branch and not adjusted in the Circle figures.

(*c*) Relates to Chenat Nair Exploitation and not included in the Sixth Circle.

ANNUAL FORM No. 42.

Forest Department, Madras Presidency.

Financial results for the year 1929–30.

District.	Timber and other produce removed from the forest by Government Agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
First Circle.							
	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Ganjam	27,950	2,962	1,09,601	98,001	52,337	1,37,551	1,53,300
Vizagapatam ..	6,455	3,424	48,485	39,901	7,500	54,940	50,825
Godavari, Upper.	88,178	28,110	67,817	63,244	36,736	1,55,995	1,28,090
Do. Lower.	2,803	8,086	3,11,398	89,021	38,459	3,14,201	1,35,566
Guntur	108	1,648	1,57,498	72,196	6,135	1,57,606	79,979
Nellore	13,952	8,632	1,41,349	83,851	13,640	1,55,301	1,06,123
Total ..	1,39,446	52,862	8,36,148	4,46,214	1,54,807	9,75,594 (*a*) 1,21,000 (*b*) — 8,978	6,53,883 (*c*) — 21 (*d*) — 1,21,000
Net ..	..	..	..	..	..	..	5,32,862
Second Circle.							
Anantapur ..	(*a*) 375	191	3,96,690	55,453	18,153	3,97,065	73,797
Kurnool, East ..	7,277	2,082	53,952	58,363	22,649	61,229	83,094
Do. South.	25,063	6,832	1,13,011	64,447	21,437	1,38,074	92,716
Do. West ..	11,928	2,582	1,68,868	84,965	30,184	1,80,796	1,17,731
Cuddapah, North.	227	292	85,296	61,893	19,866	85,523	82,051
Do. South.	(*b*) 2,865	615	1,54,583	65,520	20,059	1,57,448	86,194
Total ..	47,735	12,594	9,72,400	3,90,641	1,32,348	10,20,135	(*c*) 5,35,583
Fourth Circle.							
Chittoor	5,117	2,059	88,331	73,039	23,434	93,448	98,532
Vellore	2,21,737	16,606	3,12,689	1,16,946	41,414	5,34,426	1,74,966
Salem, North ..	2,95,497	34,703	81,690	72,129	(*c*) 28,403	3,77,187	1,35,235
Do. Central ..	19,619	3,902	1,87,148	83,349	13,266	2,06,767	1,00,517
Do. South ..	24,731	4,298	1,36,816	66,064	18,168	1,61,547	88,530
Total ..	5,66,701	61,568	8,06,674	4,11,527	1,24,685	(*a*) 13,73,375 (*b*) — 10,372	5,97,780

Note for the First Circle—

(*a*) Recoveries of investment on Government Commercial undertakings.

(*b*) Refunds.

(*c*) Suspense—Works—Advances—Voted.

(*d*) Treated as abatement under investments in Government Commercial undertakings. (Value of Russellkonda Saw Mill buildings and furniture adjusted.)

Note for the Second Circle—

(*a*) Includes Rs. 363 credited in Fourth Circle towards the sale of sandalwood.

(*b*) Includes Rs. 615 credited in Fourth Circle towards the sale of sandalwood.

(*c*) Excludes Rs. 452 incurred by the Special Chenchu Officer under '8-b. Conservancy and works' and includes Rs. 1,200 since transferred by the Accountant-General from the Fifth Circle.

Note for the Fourth Circle—

(*a*) Excludes Rs. 6,747 sandalwood revenue relating to other circles.

(*b*) Refunds.

(*c*) Includes Rs. 7,449 spent on the investigation of spike disease in sandal, by the Indian Institute of Science, Bangalore, under '8-c (ii). Research'.

Financial results for the year 1929-30—*cont.*

District.	Timber and other produce removed from the forests by Government agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
Fifth Circle.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Kollegal	1,55,537	13,871	83,116	70,120	24,232	2,38,653	1,08,223
Coimbatore, North.	2,24,922	34,693	1,12,967	65,928	17,778	3,37,889 (*a*) — 625	1,18,399
Do. South.	1,26,895	1,48,882	93,652	33,478	13,593	2,20,547	1,95,953
Madura	3,847	2,856	2,46,968	98,415	34,344	2,50,815	1,35,615
Tinnevelly ..	11,334	6,074	1,60,860	68,394	17,897	1,72,194	92,365
Tanjore	26	..	19,941	2,597	320	19,967	2,917
Total ..	5,22,561	2,06,376	7,17,504	3,38,932	1,08,164	(*c*) 12,39,440	(*d*) 6,53,472 (*b*) + 446
							6,53,918

Note for the Fifth Circle—

Revenue.

(*a*) Nilgiri revenue wrongly included in Fifth Circle.
(*b*) Expenditure left out on account of Valparai Sleeper project, etc.

	RS.
(*c*) *Audited actuals*	11,20,485
Add—Valparai Sleeper project	+ 1,20,866
Realized in the Forest Utilization Officer's division by sale of tusks	+ 490
	12,41,841
Add—Revenue of Tinnevelly sandalwood realized in the Fourth Circle	+ 5,769
	12,47,610
Deduct—Revenue for sandalwood for the Nilgiris credited in the Fifth Circle	— 3,088
	12,44,522
Deduct—Refunds	4,457
Figure in Form No. 42	12,40,065
Deduct—Nilgiri revenue wrongly included in Fifth Circle ..	— 625
	12,39,440

Expenditure.

(*d*) As per Form No. 39	5,57,634
Add—To tally with Accountant-General's actuals	39
	5,57,673
Deduct—The amount transferred to Second Circle from Pay of Officers—Voted	1,200
	5,56,473
Add—Expenditure under 8 (*b*) on account of Valparai Sleeper project	88,984
Expenditure on establishments	8,461
	6,53,918

Financial results for the year 1929-30—*cont.*

District.	Timber and other produce removed from the forests by Government Agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
Sixth Circle.	RS.	RS.	RS.	RS.	RS.	RS.	RS.
Mangalore, North.	49,381	41,955	54,392	38,198	20,373	1,03,773	1,00,526
Do. South.	1,48,808	1,71,935	41,335	25,239	8,784	1,90,143	2,05,958
Wynaad	3,15,625	3,16,107	38,263	38,922	41,313	3,53,888	3,96,342
	(*a*)+2,102					(*a*)+ 2,102	
The Nilgiris ..	1,15,304	71,990	51,525	55,856	18,892	1,66,829	1,46,738
Palghat	89,087	1,03,644	1,02,117	58,036	17,071	1,91,204	1,78,751
Nilambur	* 1,94,029	* 93,164	..	..	..	1,94,029	93,164
						(*b*) — 1,832	
Chenat Nair ..	* 64,239	*1,56,094	..	..	..	64,239	1,56,094
Direction	..	..	973	..	..	973	..
Inspector of Live-stock.	..	8,292	..	..	..	..	8,292
Total ..	9,76,473	9,63,181	2,88,605	2,16,251	1,06,433	(*e*)12,65,348	12,85,865
	(*a*)+2,102					(*c*) — 1,752	(*d*)—1,37,645
							11,48,220

Note for the Sixth Circle—

* Represents revenue and expenditure for the whole division.
(*a*) Revenue realized in the Forest Utilization division (Rs. 1,57,636—1,55,534).
(*b*) Represents March Supplemental adjustments.
(*c*) Refunds.

	RS.
(*d*) *Deduct*—	
(1) Losses as shown in the Circle Report	79,332
(2) Excess debit taken in the report on account of Parappa Mill	28,777
(3) Excess debit on account of Chedleth Saw Mill	27,695
(4) Accountant-General's March Supplemental	1,35,804
Adjustment	1,832
	1,37,636
Added to tally with the Accountant-General's figures ..	9
	1,37,645
(*e*) Revenue as per Form No. 39	12,02,941
Deduct—Accountant-General's supplemental adjustments ..	— 1,832
	12,01,109
Add—Revenue realized in the Exploitation division Chenat Nair Non-Commercial Revenue from 1st November 1929 to 31st March 1930	64,239
	12,65,348

Financial results for the year 1929-30—*cont.*

District.	Timber and other produce removed from the forests by Government Agency.		Other revenue.		Formation, protection and improvement of forests.	Total.	
	Receipts.	Charges.	Receipts.	Charges.	Charges.	Receipts.	Charges.
						Rs.	Rs.
Grand Total ..	..	..	..	..	..	58,73,892	34,68,363
Forest Engineering Branch.	..	..	..	..	..	(*a*) 34,022	3,21,387
Parlakimedi Maliahs.	..	..	..	..	..	52,925	35,029
Golgonda Agency.	..	..	..	..	..	6,260	9,920
Total ..	..	..	..	..	..	59,67,099	38,34,699
Deduct—Refunds (First, Fourth and Sixth Circles).	..	..	..	..	..	21,102	..
	..	..	..	..	..	59,45,997	38,34,699
Add—							
Forest College ..	..	..	..	..	..	46,846	97,338
Working Plans Circle.	..	..	..	..	..	869	1,65,726
Chief Conservator.	..	..	..	..	..	352	1,67,507
Forest Research Officer.	..	..	..	..	..	..	37,484
Chenchu Officer.	..	..	..	..	..	..	26,922
Expenditure in England.	..	..	..	..	..	..	1,93,881
	..	..	..	..	..	59,94,064	45,23,557
	..	..	..	..	..	..	(*b*) + 6
Grand Total, Presidency.	..	..	..	..	..	59,94,064	45,23,563

(*a*) Represents revenue not adjusted in District accounts.
(*b*) Added to tally with the Accountant-General's figures.

ANNUAL FORM No. 43.

Forest Department, Madras Presidency.

PART I.

Statement of live-stock (1) elephants and (2) other live-stock during 1929-30.

District.	On hand at the commencement of the year.		Number received during the year.	Number disposed of during the year.	On hand at the end of the year.		Total expenditure on maintenance during the year.
	Number.	Value.			Number.	Value.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ELEPHANTS.		RS.				RS.	RS. A. P.
First Circle.							
Godavari, Upper..	2	6,734	1	1	2	6,204	1,953 0 0
Do. Lower..	1	2,500	..	..	1	2,500	1,323 0 0
Total ..	3	9,234	1	1	3	8,704	3,276 0 0
Second Circle.							
Kurnool, West ..	2	4,000	..	..	2	4,000	* 2,354 1 0
Total ..	2	4,000	..	..	2	4,000	2,354 1 0
Fourth Circle—Nil.							
Fifth Circle.							
Coimbatore, South.	21	62,100	14	10	25	66,500	20,876 12 4
Total ..	21	62,100	14	10	25	66,500	20,876 12 4
Sixth Circle.							
Mangalore, North.	5	9,350	..	1	4	8,200	4,265 2 1
Do. South.	10	23,650	3	..	13	23,950	11,762 14 0
Wynaad	30	57,950	20	18	32	66,500	31,464 0 0
Nilambur	29	72,850	3	5	27	78,450	29,398 5 0
Nilgiris	18	40,200	5	14	9	19,700	12,336 11 5
Palghat	..	..	5	..	5	13,300	2,560 0 0
Total ..	92	2,04,000	† 36	38	90	2,10,100	91,787 0 6
Grand Total, Presidency.	118	2,79,334	51	49	120	2,89,304	1,18,293 12 10
(2) OTHER LIVESTOCK.							
First Circle.							
Nellore	1	40	..	..	‡1	40	29 0 0
Total ..	1	40	..	..	‡1	40	29 0 0
Second Circle.							
Anantapur ..	2	75	§1	‖1	2	75	15 0 0
Total ..	2	75	1	1	2	75	15 0 0

* Includes Rs. 1,026-13-0 being the pay of establishment.
† Excludes one mukna captured but died before enkraalment.
‡ Buffalo.
§ Purchased at a cost of Rs. 46.
‖ Sold in public auction for Rs. 10 being quite unserviceable.

Statement of live-stock (1) elephants and (2) other live-stock during 1929-30—*cont.*

District.	On hand at the commencement of the year.		Number received during the year.	Number disposed of during the year.	On hand at the end of the year.		Total expenditure on maintenance during the year.
	Number.	Value.			Number.	Value.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		Rs.				Rs.	Rs. A. P.
(2) Other Live-stock—*cont.*							
Fourth Circle.							
Chittoor	1	35	..	..	1	15	29 4 0
Total ..	1	35	..	..	1	15	29 4 0
Fifth Circle—Nil.							
Sixth Circle.							
Mangalore, South.	12	1,547	..	12	..	..	3,235 1 3
Wynaad	9	916	3	3	9	799	1,965 13 0
Nilambur	22	1,670	4	2	24	1,720	7,554 9 9
Nilgiris	6	465	..	2	4	305	1,379 15 7
Palghat	..	..	4	..	4	440	389 0 0
Total ..	*49	4,598	†11	‡19	§41	3,264	14,524 7 7
Grand Total, Presidency.	53	4,748	12	20	45	3,394	14,597 11 7

* 8 bulls, 37 buffaloes and 4 asses.
† 9 buffaloes and 2 asses.
‡ 14 buffaloes, 4 bulls and 1 ass.
§ 32 buffaloes, 4 bulls and 5 asses.

PART II.

Statement of elephants gone off the list during the year 1929–30.

District.	Names.	When purchased or otherwise obtained by Government.	Age.	How disposed of.
		First Circle.	YRS.	
Upper Godavari. *	Anarkali ..	Purchaser at Sonepur fair in November 1928.	26	Died on 27th August 1929.
		Second Circle—Nil.		
		Fourth Circle—Nil.		
		Fifth Circle.		
South Coimbatore.	1. Pankajam.	Captured	14	Ran away. Written off in Chief Conservator's L. Dis. No. 1139/30, dated 12th March 1930.
	2. Ganapathy.	Captured on 16th August 1929 ..	1	Handed over to the Raja of Kollengode.
	3. Saraswathi.	Do. do. ..	3¾	Do.
	4. Shekaran.	Do. 24th August 1929 ..	8	Sold to the Raja of Kollengode.
	5. Meenaka.	Do. 1st September 1929.	2¾	Died on 27th July 1930.
	6. Rukmani.	Do. 13th October 1929 ..	½	Destroyed on 1st January 1930.
	7. Meenakshi.	Do. 25th October 1929 ..	30	Escaped from Krael. Written off in Chief Conservator's L. Dis. No. 8742/29, dated 16th January 1930.
	8. Name not given.	Do. 11th October 1929 ..	..	Released from the pit as it was lame. Written off in Conservator's No. 2141/29, dated 22nd November 1929.
		Sixth Circle.		
North Mangalore.	Emily ..	Captured on 22nd June 1899 ..	50	Transferred to Wynaad.
Wynaad.	Elsie ..	Do. 31st May 1907 ..	42	Do. Palghat.
	Horatius ..	Do. 1st August 1918 ..	26	Do. Nilgiris.
	Govind ..	Do. 23rd May 1926 ..	13	Do. Palghat.
	Nithyan ..	Do. 26th January 1928..	13	Do. do.
	Ayyappan ..	Do. 24th April 1928 ..	10	Sold.
	Gajaraj ..	Born to Elsie on 6th January 1929.	¾	Do.
	Hyder ..	Captured on 21st January 1929.	1	Died.
	Kali ..	Do. 2nd March 1929 ..	½	Do.
	Merwan ..	Do. 27th February 1929.	1	Sold.
	Tippu ..	Do. 8th March 1929 ..	2	Do.
	Kabir ..	Do. 9th March 1929 ..	5	Do.
	Ganesh ..	Do. 25th April 1929 ..	1	Do.
	Bommi ..	Do. 17th January 1929.	7	Do.
	Gopal ..	Do. do.	4	Do.
	Saraswathy.	Born to Meenakshi on 27th November 1928.	¾	Do.
	Subramanian	Born to Thamburatti on 5th September 1928.	1	Do.
	Calf of Parvathy.	Born on 28th August 1929 ..	3 months.	Died.
	Radha ..	Captured on 17th January 1930.	6 months.	Do.

* The elephant was written off in Chief Conservator's L. Dis. No. 7524/29, dated 17th October 1929.

Statement of elephants gone off the list during the year 1929-30—*cont.*

District.	Names.	When purchased or otherwise obtained by Government.	Age.	How disposed of.
		Sixth Circle—cont.	YRS.	
Nilambur.	Kamakshi ..	Captured on 11th April 1914 ..	33	Transferred to Palghat.
	Jim	Born to Kuttiparu on 5th February 1927	3	Sold.
	Shajehan ..	Born to Nurmahal on 29th December 1927.	2	Do.
	Gajendran ..	Born to Kamakshi on 16th February 1928.	2	Do.
	Jayalakshmi.	Born to Kitty on 26th February 1928.	2	Do.
Nilgiris ..	Meenakshi ..	Captured on 9th March 1889 ..	40	Transferred to Wynaad.
	Thamburatti.	Do. 3rd February 1913..	28	Do. do.
	Akbar ..	Do. 10th February 1923.	16	Do. Palghat.
	Chicklakshmi.	Do. 27th May 1927 ..	41	Do. Wynaad
	Parvathi ..	Do. 5th April 1928 ..	23	Do. do.
	Durai ..	Do. 18th May 1928 ..	16	Do. do.
	Lalitha ..	Do. 1st June 1926 ..	32	Died.
	Melathi ..	Do. 27th May 1926 ..	25	Transferred to Wynaad.
	Bomman ..	Do. 27th February 1913.	41	Do. Nilambur.
	Madhavan ..	Do. 12th March 1906 ..	28	Do. Wynaad.
	Subramanian	Born to Thamburatti on 5th September 1928.	1	Do. do.
	Saraswathi.	Born to Meenakshi on 27th November 1928.	1	Do. do.
	Gopal ..	Captured on 17th January 1929.	7	Do. do.
	Bommi ..	Do. do.	4	Do. do.

ANNUAL FORM No. 44.

Forest Department, Madras Presidency.

Abstract showing the value of stores, tools and plant for 1929-30.

Annual Form No. 44.

Forest Department, Madras Presidency.

Abstract showing the value of stores, tools and plant for 1929-30.

District.	Stores.						Difference.	
	On hand at the commencement of the year.		Additions or exclusions during the year.		On hand at the end of the year.		In favour of the year.	Against the year.
	Number.	Value.	Number.	Value.	Number.	Value.	Value.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
First Circle.		Rs.		Rs.		Rs.		Rs.
Direction	(*d*) 301	5,004	13	28	314	5,032	28	..
Ganjam	(*b*) 6,150	(*c*) 1,71,716	.. (*a*) — 461	.. — 11,995	5,689	1,59,721	..	11,995
Vizagapatam	1,759	8,854	.. (*a*) — 53	.. — 333	1,706	8,521	..	333
Upper Godavari	4,205	19,280	124 (*a*) — 73	582 — 1,485	4,256	18,377	..	903
Lower Godavari	8,162	11,237	563 (*a*) — 5,707	27,156 — 2,911	3,018	35,482	24,245	..
Guntur	6,556	14,299	435 (*a*) — 561	2,054 — 910	6,430	15,443	1,144	..
Nellore	60,705 + 2 miles of tram line.	43,156	256 + 7 miles of tram line. (*a*) — 85	31,716 — 222	60,876 + 9 miles of tram line.	74,650	31,494	..
Total ..	87,838 + 2 miles of tram line.	2,73,546	1,391 + 7 miles of tram line. (*a*) — 6,940	61,536 — 17,856	82,289 + 9 miles of tram line.	3,17,226	43,680	..
Second Circle.								
Direction	380	6,445	+ 1 — 3	+ 36 (*a*) — 49	378	6,432	..	13
Anantapur	4,810	12,864	+ 1,197 — 1,124	+ 1,375 (*a*) — 1,598	4,883	12,641	..	223

Kurnool, East	3,943	13,104	+ 685 — 980	+ 3,483 (a) — 444	3,648	16,143	3,039	..
Do. South	2,443	16,610	+ 105 — 241	+ 165 (a) — 950	2,307	15,825	..	785
Do. West	7,588	25,653	+ 57 — 303	+ 308 (a) — 593	7,342	25,368	..	285
Cuddaph, North	3,726	9,491	+ 293 — 114	+ 3,878 (a) — 72	3,905	13,297	3,806	..
Do. South	3,406	13,260	+ 173 — 74	+ 2,912 (a) — 180	3,505	15,992	2,732	..
Total ..	26,296	97,427	+ 2,511 — 2,839	+12,157 — 3,886	25,968	1,05,698	8,271	..
Fourth Circle.								
Direction	217½	5,756	6	(b) — 538	225½	6,905	1,149	..
Chittoor	* 4,336	* 11,998	14 279 506	(a) + 1,687 (a) + 1,502 (b) — 1,695	4,008	11,792	..	206
Vellore	7,321	26,487	101 1,169 377	(c) — 13 (a) + 2,123 (b) — 506	8,113	28,104	1,617	..
Salem, North	† 3,878	† 9,855	183 68	(a) + 2,228 (d) + 7,656 (c) — 146	3,993	19,593	9,738	..
Do. Central	4,518	12,368	1,081 248	(b) — 707 (a) + 1,752	3,685	13,413	1,045	..
Do. South	3,708	12,076	675 333½	(a) + 522 (b) — 273	4,049½	12,325	249	..
Total ..	23,978½	78,540	2,472½ 2,568	— 3,878 +17,470	24,074	92,132	13,592	..

* One bull at Rs. 40 included in the closing balance of 1928–29 has been excluded from this figure.

† Fifteen roads valued at Rs. 15,552 were wrongly included as stores last year. They have been omitted in columns (2) and (3) in bringing forward. Hence the difference in the closing balance of last year and the opening balance of 1929–30.

Note for First Circle.
- (a) Written off, transferred or otherwise disposed of.
- (b) Includes 26 articles of machinery belonging to Russellkonda Sawmill.
- (c) Includes the value of machinery and spare parts of Russellkonda Sawmill.
- (d) Correct figure.

Note for Second Circle.— (a) Written off as unserviceable. (c) Other disposals.

Note for Fourth Circle.
- (a) Additions and revaluations. (d) Revaluation figure.
- (b) Written off or transferred.

Abstract showing the value of stores, tools and plant for 1929-30—*cont.*

District.	Stores.				Difference.			
	On hand at the commencement of the year.		Additions or exclusions during the year.		On hand at the end of the year.		In favour of the year.	Against the year.
	Number.	Value.	Number.	Value	Number.	Value.	Number.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Rs.		Rs.		Rs.		Rs.
Fifth Circle.								
Direction	230	2,558	(b) 2 (c) 2	(a) 155 165 151	230	2,397	..	161
Kollegal	2,335	8,632	(b) 385 (c) 109	896 180	2,611	9,348	716	..
North Coimbatore	1,941	9,218	(b) 197 (c) 46 (e) ..	606 110 2,861	2,092	12,575	3,357	..
South Coimbatore	2,345	24,547	(b) 1,135 (c) 368	29,234 811	3,112	52,970	28,423	..
Madura	3,885	8,747	(b) 319 (c) 832	1,469 337	3,372	9,879	1,132	..
Tinnevelly.	3,420	8,199	(b) 472 (c) 272 (e) ..	837 174 5,648	3,620	14,510	6,311	..
Vernacular Training School ..	520	388	(d) 73	..	447	388	..	..
Total ..	14,676	62,289	(b) 2,510 (c) 1,629	33,197 1,777	15,484	1,02,067	39,778	..
			(f) .. (e) ..	151 8,509	..	..	..	..

Sixth Circle.									
Direction	429	6,595	11 —10	301 26	430	6,870	275	..	
North Mangalore	1,482	12,102	257 —45	1,016 368	1,694	12,750	648	..	
South Mangalore	(g) 3,117	19,284	286 —430	1,781 1,954	2,973	19,111	..	173	
Wynaad	3,438	20,030	666 —399	8,090 4,108	3,705	24,012	3,982	..	
Nilambur	1,846	11,800	494 —231	10,748 3,317	2,109	19,231	7,431	..	
The Nilgiris	1,710	13,695	63 —194	748 735	1,579	13,708	13	..	
Palghat	1,591	10,148	134 —5	662 235	1,720	10,575	427	..	
Total ..	13,613	93,654	1,911 —1,314	23,346 10,743	14,210	1,06,257	12,603	..	

(a) The cost of 2 tents supplied during 1928-29 has been excluded as the value is not known as it was adjusted in Chief Conservator's office.
(b) Additions.
(c) Exclusions—Articles written off.
(d) Transferred to Kollegal division.
(e) Due to revaluation.
(f) Due to depreciation.
(g) The difference is due to the inclusion of uniforms and accoutrements which were not included in the last year's return.

Abstract showing the value of live-stock, stores, tools and plant for the year 1929–30.

District.	Stores.				Difference.				Remarks.
	On hand at commencement of the year.		Additions or exclusions during the year.		On hand at the end of the year.		In favour of the year.	Against the year.	
	Number.	Value.	Number.	Value.	Number.	Value.	Value.	Value.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Rs.		Rs.		Rs.	Rs.	Rs.	
Forest Engineering Division, Olavakkot.									
A Group a section	2	13,446	..	..	2	12,426	..	1,020	Depreciation.
,, ,, b ,, ...	47	1,706	+ 24	+ 283	71	1,989	283	..	
,, ,, c to o sections	796	13,396	— 30	— 4,521	766	8,875	..	4,521	Depreciation.
B ,, all ,, ...	49	413	— 14	— 61	35	352	..	61	
C ,, ,, ,, ...	200	860	— 34	— 60	166	800	..	60	
D ,, ,, ,, ...	32	1,097	— 5	— 61	27	1,036	..	61	
F ,, b and c sections	156	475	+ 17	— 49	173	426	..	49	
G ,, all ,, ...	77	700	..	..	77	600	..	100	
Oil and material exploitation	..	1,114	..	..	..	485	..	629	
H Group, a section	16	87,631	..	..	16	83,681	..	3,950	Depreciation.
,, ,, b to n sections	2,299	11,505	— 501	— 1,485	1,798	10,020	..	1,485	
,, ,, o section	1	5,729	..	..	1	5,520	..	209	
,, ,, p ,, ...	1	4,717	..	..	1	4,015	..	702	
K ,, a ,, ...	1	18,586	..	..	1	17,719	..	867	
M ,, all sections	1	4,266	..	..	1	3,902	..	364	
Mill oil and materials	..	779	..	— 232	59 items + 204 gals.	547	..	232	
Total ..	..	1,66,420	..	..	..	1,52,393	283	14,310	
Machine shop	52	2,822	..	..	52	2,599	..	223	
Workshop machinery and tools ..	87	11,160	+ 8	— 432	95	10,728	..	432	
Total ..	..	13,982	..	..	147	13,327	..	655	

Sawmills and Extraction Division.	Central stores	..	28,408	..	+ 5,950	6,043	34,358	5,950	..	
	Office furniture, Sawmills and Extraction office	5	57	4	+ 22	9	79	22	..	
	Total ..	..	28,465	..	5,972	6,052	34,437	5,972	..	

Division.	Stores.				Difference.			
	On hand at the commencement of the year.		Additions or exclusions during the year.		On hand at the end of of the year.		In favour of the year.	Against the year.
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		Rs.		Rs.		Rs.		Rs.
Forest College	..	50,590	..	..	..	50,689	..	..
Total, Presidency	170,079½	8,64,913	10,891	1,47,706	165,211	9,74,226	103,674	..

Note.—Exoludes the figures for the Parlakimedi Maliahs whioh were not furnished by the Special Forest Officer, Parlakimedi Maliahs.

ADMINISTRATION REPORT

OF THE

FOREST DEPARTMENT

OF THE

MADRAS PRESIDENCY

FOR THE

YEAR ENDING 31st MARCH 1930

VOL. II—1929-30

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BOMBAY BRANCH
OF THE
Royal Asiatic Society.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1930.

FIRST CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. (i) *Reserved forests.*—The total area of reserved forests decreased from 4,059 square miles to 4,054 square miles chiefly due to the disreservation of portions of ryots' forests in *Lower Godavari* and *Guntur* for assignment to depressed classes, in *Nellore* to the disreservation of Kodur tope reserved forest (ryots' forest) as no panchayat could be formed for it and to the disreservation of 40 acres in Pedamidisileru reserved forest in *Upper Godavari* to exclude a tank.

(ii) *Reserved lands.*—There was an increase of about one square mile, due to the notification under section 4 of the Forest Act of an area of 488 acres of Repaka extension in *Upper Godavari.*

2. FOREST SETTLEMENT.

2. Nil.

3. DEMARCATION.

3. An expenditure of Rs. 2,948 was incurred in connexion with the demarcation of blocks proposed for reservation in—

	MILES.
Ganjam (Balliguda Agency)	82
Upper Godavari	36
Lower Godavari (Rampa)	80

In *Vizagapatam* Rs. 81 were spent on reclearing 10 miles of reserve lines in advance of the survey by the Survey of India. In *Lower Godavari* the boundaries of notified blocks in Rampa were

recleared and maintained at a cost of Rs. 862, and the boundary between the Kandikuppa reserved forest and Brahmasamudayam zamindari which was in dispute, was settled and demarcated at a cost of Rs. 38. In *Guntur* Rs. 54 were spent in planting boundary stones. In *Nellore* 1 mile 7 furlongs of boundary of Sathiavedu reserved forest was demarcated with granite pillars at a cost of Rs. 97.

The reclearance of boundaries was as usual done by the subordinates free of cost or as part of the scheme for fire-protection.

Twenty-six miles of frontier boundaries were inspected by the District Forest Officer, *Upper Godavari.*

4. Forest Surveys.

4. (*a*) *By the Madras Survey Party.*—A Sub-Assistant Director of the Madras Survey Party No. I surveyed 10 miles of the boundary between Nugur reserved forest in *Upper Godavari* and Baster State and also laid out and resurveyed 28 miles of the disputed boundary between Pedamidisileru reserved forest and Bastar State. This completes the survey of the frontier boundary between Nugur taluk of Madras Presidency and Bastar State in Central Provinces.

Rajahmundry	Devancheruvu
Peddapur	Anantaram
	Vuligogula
	Sarlanka
	Annavaram
	Raghavapatnam
	Lingamparti
	Aminbada
	Jeddangi
Gokavaram	Veerabhadrapuram
	Sudikonda
	Tirumalayapalam
	Molleru
	Mallavaram
	Doramamidi
	Singampalli
Polavaram	Bedadavole
	Marlagudem
	Kovvada

The discrepancy in respect of the external boundary of Upputeru Block II in *Lower Godavari* still remains unsettled. A land complaint was filed and is pending with the Officer-in-charge, Madras Survey Party No. I.

The Madras Survey Party sent sketches of the external boundaries of reserved forests named in the margin in Rajahmundry, Gokavaram, Peddapur and Polavaram ranges and they were promptly verified.

(*b*) *By the Survey of India.*—The Survey of India Party continued the survey on 2 inches to a mile scale in the *Lower Godavari* division. An area of 394 square miles of reserves and blocks selected for reservation in Rampa (including overlaps) were surveyed in all at a total cost of Rs. 15,397 of which Rs. 4,000

were adjusted in 1928-29 and the balance of Rs. 11,397 in the year under report. Special forest surveys by the Survey of India were then stopped by Government for any area because such surveys are considered by Government to be too costly.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

5. *Preparation and control of working plans.*—The only new working plan sanctioned during the year was the one for the Kondapalli reserved forest (area 35 square miles) of *Guntur* district sanctioned by the Chief Conservator in his Proceedings No. 145, dated 13th March 1930.

Ganjam.—The revised working plan for the Ghumsur forests begun in 1927 is still under preparation by the Working Plans Circle, but is expected to be completed by December 1930. The prescriptions of the current Ghumsur Working Plan of 1920 were followed with certain approved modifications. Improvement fellings in Plains Sal Timber Working Circle and Ravine Working Circle Periodic Blocks II, III, and IV remained in abeyance in accordance with Chief Conservator's Proceedings No. 126, Press, dated 7th April 1924.

The Mohiri forests of Berhampur range continued to be worked according to the scheme of 1922.

Vizagapatam.—The prescriptions of the sanctioned working plans were generally followed except that Pedimikonda fuel coupe V and rela bark in Narasapatam range and tangedu bark in Narasapatam and Palakonda ranges could not be sold for want of demand.

Free grazing to the villagers of Chittampadu and Makaram muttahs, for successful fire-protection, was sanctioned in Chief Conservator's Proceedings Rt. No. 134, dated 11th March 1930, in lieu of money rewards prescribed by the Dharakonda Working Plan sanctioned in B.P. For. No. 322, dated 8th December 1903, and amended by B.P. For. No. 50, dated 7th March 1912.

A scheme for working systematically the sal patches near Donubhai in Palakonda range is now being scrutinized.

Upper Godavari.—The scheme of 1925 for working the Hardwickia binata areas in the reserved forests was revised by the District Forest Officer, Mr. Belliappa, and was approved by the Conservator, I Circle, during the year.

Modifications to the non-teak working scheme of 1927 were prepared by the District Forest Officer and approved by the Conservator.

The other sanctioned schemes were found to be suitable and are working satisfactorily.

Lower Godavari.—A draft revised working scheme for the teak areas in Kovvada, Kopalli and Bedadavole reserved forests was prepared by the District Forest Officer but was returned by Conservator with remarks for furnishing further information.

Guntur.—The draft working plans for the Vinukonda-Venkatayapalem forests and the Repalle mangrove forests referred to in previous year's report have not yet received sanction, as on scrutiny it is found that both will need substantial changes before they can be sanctioned.

Nellore.—Revised working plans for the forests in the Sriharikota and Sathiavedu ranges are still under scrutiny. The prescriptions of the sanctioned working plan for the Sathiavedu range are being generally followed except that removal of prickly-pear was not attended to. The question of eradicating this pest by biological means is under consideration.

2. Communications and Buildings.

6. The only new work costing over Rs. 5,000 was the construction of ranger's quarters and stables and range clerk's quarters at Bhadrachalam estimated to cost Rs. 5,380 and which was sanctioned by the Chief Conservator. The work was in progress durign the year.

7. *Roads and bridges.*—The total expenditure on new works was Rs. 10,788 while that on repairs was Rs. 7,859.

The important works executed were—

Ganjam.—(1) Improvements to a bridge over Kutra Nalo.

(2) Completion of the metalling of the Rambha Rest-house road.

(3) Completion of an earthen road from Tilasingi to Tarasingi.

Vizagapatam.—Construction of 2 miles 5 furlongs of the Viraghattam-Donubhai road project.

Upper Godavari.—About 1 mile 2 furlongs of roads in Walsugrivi and Sitarampuram reserved forests.

Lower Godavari.—(1) Part-construction of about $2\frac{1}{2}$ miles of Kachalur-Pedanuthula road.

(2) Part-construction of 1 mile 7 furlongs of Sudikonda Mallavaram road.

Nellore.—(1) Part-conversion of the bridlepath from Bhata to Boggutla into a cart-track.

(2) Gravelling the Varadayapalem-Thanthipandal road.

Maintenance.—The aggregate length of all roads, cart-tracks and bridle-paths in the whole circle was 829 miles constructed at a cost of Rs. 1,94,229 and of which 197 miles were repaired during the year at a cost of Rs. 7,859. All the District Forest Officers except *Ganjam* and *Guntur* have certified that all the roads in their divisions are maintained in a fair state of repairs. In *Ganjam* and *Guntur* repairs to some roads had to be postponed mainly for want of sufficient funds and all those worth maintaining are being repaired during the current year. As approved in Chief Conservator's Proceedings No. 421, Press, dated 24th October 1929 (Conservator's Inspection Notes of Kurnool East) lists are being prepared of roads which are useful and which should be properly looked after and of such old roads (often mere dirt tracts primarily opened up to serve temporary necessity) which may be given up.

8. *Buildings.*—The expenditure on new works was Rs. 11,110 and that on repairs was Rs. 18,918.

The chief works were—

Ganjam.—(1) Kitchen to inspection shed at Mojjogoda.

(2) Second kitchen to Russellkonda circuit house.

(3) Laying out a water-pipe for the Berhampur range office and quarters.

Vizagapatam.—(1) Completion of a rest-house at Donubhai with outhouses.

(2) Completion of forest guard's lines at Somidavalasa.

Upper Godavari.—(1) Part-construction of Range Officer's quarters and stables at Bhadrachalam.

(2) Completion of foresters' quarters at Edira.

Lower Godavari.—Part-construction of rest-house at Puliramudugudem and subordinates' quarters at Krishnaraopeta.

Guntur.—(1) Outhouse to rest-house at Kandlagunta.

(2) Part-construction of rest-house at Nizampatam.

Nellore.—Conversion of the old choultry at Ravanappa chatram into a rest-house.

Tramways—Nellore.—Three and seven-eighths miles of tram-track was purchased from Messrs. Parry & Co., Madras, and $3\frac{1}{8}$ miles was obtained through the Stores Department, England. The total cost for the 7 miles was Rs. 31,306.

9. *Other works.*—The expenditure of Rs. 718 on new works represents the amount spent on the completion of the well in the compound of the rest-house at Kurcholi in *Ganjam* and of the well in the compound of the range buildings at Vararamachendrapuram and part-construction of the well in the range quarters at Chintur in *Upper Godavari.*

3. Protection of Forests.

(a) *General protection.*

10. The subjoined statement shows the total number of offences reported during the year and in the previous year :—

——	1928-29.	1929-30.		
		By Forest officers.	By Revenue officers.	Total.
1. Injury to forests by fire	112	116	..	116
2. Unauthorized felling	2,648	2,022	910	2,932
3. Unauthorized grazing	578	698	37	735
4. Other offences	274	186	126	312
Total ..	3,612	3,022	1,073	4,095

There was an increase under all heads and specially under 'Unauthorized felling' and 'Grazing'. The increase occurs chiefly in *Ganjam, Lower Godavari, Guntur* and *Nellore* and is attributed to greater vigilance of subordinates and District Forest Officers. In *Lower Godavari, Guntur* and *Vizagapatam* special patrol parties were organized for surprise inspections and this also had a good effect on beat staff and seems to have led to an improvement in detection.

Out of 970 cases prosecuted in courts 349 ended in conviction and 621 in acquittal. Of the cases acquitted 533 were settled by the payment of compounding fees in court. The total amount of compounding fees realized during the year was Rs. 41,340.

The percentage of cases enquired into by District Forest Officers and Range Officers is given below :—

District.	District Forest officer.	Extra Assistant Conservator.	Ranger.
	PER CENT.	PER CENT.	PER CENT.
Ganjam	...	6·6	65
Vizagapatam	1	...	7
Upper Godavari	5·5	...	36·5
Lower Godavari	·25 (1 case)	...	20·5
Guntur	·27 (3 cases)	...	6
Nellore	4	...	3

" 11. *Rewards.*—Rewards amounting only to Rs. 118 were awarded to the subordinates in *Guntur* and *Nellore* districts, for specially good detection work done by them. It is being impressed on the District Forest Officers that we must follow a more liberal policy of rewarding subordinates and others for meritorious work done for the department.

(*b*) *Protection from fire.*

12. The areas attempted to be protected in the fire season of 1929 and those actually protected are shown in Form No. 31, the number and origin of fires being given in Appendix A. The area under special protection was 920,135 acres against 941,252 acres in the previous year, the decrease being chiefly in *Guntur* district where Kondapalli reserved forest and its extension were transferred from special to general protection due to abandonment of early-burning operation in accordance with the prescription of the revised working plan. The percentage of successful protection was 82 against 77 in the previous year which is due mainly to the 1929 season being less severe owing to early rains in *Ganjam*, *Vizagapatam* and *Upper Godavari*. The cost per square mile of the area where special protection was attempted was Rs. 8-14-0 against Rs. 7-2-0 in the previous year. The area under general protection was 802,359 acres of which only 22,621 acres or 2·8 per cent were burnt.

The Khonds of *Ganjam* in general assisted the department in preventing and putting out fires and for which they were given rewards to the extent of Rs. 248. An amount of Rs. 2,307 was distributed as rewards to Koyas and Reddis of *Upper Godavari* for successful protection of forests. In *Lower Godavari* the settlers of the Peddapur range were as usual granted rewards amounting to Rs. 659 for successful protection in addition to payment for labour. The Koyas and Reddis of Polavaram Agency were not granted any rewards this year also. They still do not realize their obligations in the matter of protection of forests from fire in return for rewards given to them and often they are responsible for extensive fires.

(*c*) *Protection from cattle.*

13. The area open to grazing of all animals (except goats which are excluded from all reserves) was 2,193 square miles against 2,206 square miles in the previous year, the decrease being due to the closure of worked coupes.

The grazing incidence in the several districts was—

District.	1928-29. Acres per cow unit.	1929-30. Acres per cow unit.
Ganjam	6·06	5·65
Vizagapatam	5·00	5·00
Upper Godavari	4·89	4·57
Lower Godavari	2·10	2·43
Guntur	3·29	3·31

In *Nellore* out of 142 kanchas 103 were sold at different rates including 8 kanchas which were given on long lease. Thirty-nine kanchas remained unsold, some for want of demand, but mainly due to a stricter adherence to condition 7 of the sale notice which prescribes higher rates per acre for tenders received after due date. This rule has to be enforced as till kanchas are leased out, the duty of protecting them devolves on the department. In the Sriharikota Island the village lump sum grazing system continued to be in force.

The number of cattle licensed to graze on payment was 344,684 against 348,734 in the previous year. The decrease of 4,050 is trifling being only about 1 per cent when compared with the total.

The number of cattle impounded during the year was 11,240 against 8,790 in the previous year. The increase is attributed to greater activity of the subordinates in *Ganjam* and special steps to prevent illicit grazing that were taken in *Guntur* by organizing surprise patrol parties.

(*d*) *Protection against injuries from natural causes.*

14. Climber and creeper cutting is dealt with in Chapter III—Sylviculture.

Lower Godavari.—Almost all the teak plots and the teak regeneration in the coupes in Polavaram range suffered badly from the attacks of defoliators. To a small extent some teak plants were found to be attacked by a borer which has been identified to be a larva of *Zenzegera* but further attack has to be watched and larvæ collected and sent to Dehra Dun to breed out and identify the species of the insect. The leading shoots of casuarina seedlings in Kandikuppa plantation were badly clipped off by a black mole cricket which has yet to be identified by the Entomologist at Dehra Dun to whom specimens were sent.

Nellore.—The old Loranthus experimental plot is being kept under observation to note the season, rate of infection and kind of trees which are affected by this pest. Observations are to be made in May and November annually.

An experimental plot was opened to note rate of infection of Viscum and whether infection affects crop of seeds of Nux-vomica, which is an important item of minor produce in Sriharikota Island. Records of inspection are kept.

Lantana has appeared and is said to be spreading in Ambakkam reserved forest of Sathiavedu range.

CHAPTER III.—SYLVICULTURE.

SECTION 1.—FORMATION AND REGENERATION OF FORESTS.

(i) *General Progress of areas under regeneration.*

15. *Ganjam.*—Natural regeneration of Sal on the clear-felled areas continued to be satisfactory.

Vizagapatam.—Natural regeneration of Sal and of other important timber species has been reported to have been good in Palakonda range and in Dharakonda and Senivaram reserved forests of Narasapatam range.

Seedlings of Bambusa arundinacea are coming up profusely. Dendrocalamus strictus also seeded sporadically in the Dharakonda and Senivaram reserves and its regeneration is good. Sporadic flowering of Dendrocalamus strictus was also observed in Burnakonda and Antikonda reserves of Palakonda range.

Upper Godavari.—Natural regeneration of *Terminalia tomentosa, Pterocarpus marsupium, Xylia* and teak was fair. Height growth of teak was rather retarded owing to the failure of the north-east monsoon. *Hardwickia binata* flowered and seeded in fair quantities. The fruits ripened in March-April 1930. These fruits when green are freely eaten by parrots.

Guntur.—Natural reproduction of Mada (*Avicennia officinalis*) is excellent in those portions of the Repalle mangroves which are very fully flooded by daily tides. This is particularly noticeable in the Eastern Series of Kothapalem, Potumeraka and Lankavanidibba which besides being very well flooded, are not much grazed over as there are no villages close by. Natural reproduction of Yepi and other species in the upland ranges was fair, but owing to hardness of soil due to intense grazing and lack of sufficient and timely rains, very few seedlings survive the hot weather. In Kambakkam plateau (*Nellore* district) natural regeneration of sandalwood was found in one or two places.

(ii) *Establishment of reproduction under working plans or schemes.*

(*a*) Mainly natural.

16. In the felled Sal coupes in *Ganjam* we rely entirely on natural reproduction which is however helped considerably by tending, thinning, etc., operations. In *Vizagapatam* coppice reproduction was good in all the felled fuel coupes and specially in Palakonda range where it ousted the growth of grass, thus enabling us to dispense with fire-protection operations. In *Upper Godavari* advance regeneration fellings were conducted at a cost of Rs. 297 in six coupes (256 acres) which are due for final felling five years later, with a view to open the canopy and to give more light to teak and Terminalia seedlings and to promote seed bearing and germination of the valuable species. Coppice reproduction in all the felled coupes was good. Teak coppice was taller than that of other species in all the coupes felled during the last three years. In all coupes of *Lower Godavari* and *Nellore* worked under the simple coppice system, regeneration by coppice was good. The same however cannot be said of all coupes of *Guntur* where even coppice regrowth is only fair owing to poor rainfall during the year and as soil in several series is of a very poor type mainly due to intensive grazing.

(*b*) Mainly artificial.

17. *Upper Godavari.*—The following is a brief account of the regeneration operations carried out in this division :—

(*a*) *Modified Taungya.*—This system was adopted only in non-teak working circle comprising good quality forest, destitute of natural teak but fit to grow teak and situated to the east of the Sebari river. After saleable timber was extracted, the coupes were handed over in the previous year to Koyas who after clearing all unsaleable trees and burning the rubbish, were allowed to raise a field crop. These coupes were resumed from Koyas by February 1929 and after the regrowth was cut and burnt in March 1929 by the department, were regenerated as follows :—

Modified Taungya Coupe I of Kansulur reserved forest (20 *acres*).—The whole coupe was ploughed two rounds in April 1929. Twenty-three thousand eight hundred stakes were planted at 6 ft. by 6 ft. Teak seeds were dibbled at stakes at five each in May 1929 and ten more seeds were dibbled at each stake in June 1929. Casualties were filled up with 11,200 teak stumps prepared out of the nursery seedlings in July 1929, with 18,450 germinating seeds from dumps in July and August 1929, and with 8,400 teak seedlings in August 1929. At the end of the hot weather in 1930,

70 per cent of the seedlings were found to be surviving. The cost of the operation was Rs. 199. Height growth of the seedlings during the year was very poor, very few seedlings being more than 1 foot in height.

Modified Taungya Coupe III of Rekapalle Hill reserved forest (20 *acres*).—In the whole coupe, teak was sown at 24,000 stakes at 6 ft. by 6 ft. in April 1929 ten to fifteen seeds dibbled at each stake in April 1929 ; 7,500 teak stumps from Darapalli and Pulusumamidi nurseries, and 14,000 germinating teak seeds from dumps were planted in July 1929. Casualties filled up in August and September 1929 with 11,000 germinating teak seeds from dumps and with 500 teak stumps. In the hot weather there were seedlings at 85 per cent of the stakes. The cost of the operation was Rs. 136.

In coupe II of same Rekapalle Series which was regenerated in 1928–29, casualties were replaced at a cost of Rs. 9 in July 1929, with 4,000 teak stumps, 700 Maddi and 400 Yegisi seedlings from dumps.

Coupes II of Lakkavaram reserved forest (24 acres) and IV of Pulusumamidi (30 acres) where timber fellings were completed early in the year, were resumed from the Koyas in January and February 1930 after they had harvested their field crops. The regrowth was cut and felled stuff burnt in March 1930 and areas kept ready for regeneration with teak during the coming rainy season (of 1930–31).

This system of modified Taungya (so-called because the seeds of the tree crop cannot be put down with the field crop, but only after the areas are resumed by the department after cultivation by Koyas is over—the reason for this being that the heavy field crop of jonna would suppress teak seedlings if sown at same time) was introduced in 1925 in Upper Godavari. The chief direct advantage was a saving of about 8 rupees per acre in cutting and burning unsaleable tree growth. In all, an area of 176 acres has been regenerated with very fair success under this system. It has however recently been decided to give up this system and to stop further Taungya as no feature of our modified Taungya method made any appeal to the Koyas and it was only by coaxing and pressure that work had to be got out of these men. The Koya dislikes clear-felling these coupes because the trees are much bigger than he finds in his own podu nearer villages. In his own podu he leaves very big trees and trees which do not dry quickly, e.g., Odina, Sterculia and Boswellia.

(*b*) *Clear-felling in teak forest followed by artificial regeneration in patches.*—We rely on coppice where teak is well represented in the old crop and only those patches in the coupe

which are deficient in teak are artificially regenerated with this species if they are fit to grow teak. The work on these lines was carried out in the following coupes :—

Teak clear-felled coupe II of Peddamidisileru reserved forest (25 *acres*).—Teak, Maddi and Yegisi seeds were dibbled in areas fit for these species ; the area treated is (about) 4 acres, casualties were filled up in August, September and October. The cost of the whole operation was Rs. 20. The result was disappointing especially due to the failure of the north-east monsoon.

Teak clear-felled coupe V of Dummugudem reserved forest (57 *acres*).—Teak seeds were dibbled in well-burnt patches, by subordinates free of cost. The aggregate area of the patches is (about) 2 acres. The seeds used being not very good, result was poor.

Teak clear-felled coupe IX of Tunikicheruvu reserved forest (38 *acres*).—Teak seeds were dibbled in well-burnt patches, by subordinates free of cost. The aggregate area of the patches was (about) 2 acres. The seeds being not good, result was poor.

Teak clear-felled coupe IX of Ramachendram reserved forest (58 *acres*).—Nineteen thousand stakes were planted at 6 ft. by 6 ft. in areas deficient in teak but fit for teak and teak seeds dibbled at the stakes in April at ten seeds per stake. Cost of the operation is Rs. 37. Casualties were filled up by 1,903 germinating teak seeds from dumps in August 1929. The percentage of success is 33·4 at the end of the fire season of 1930. The low percentage is due to the failure of the north-east monsoon.

Teak clear-felled coupe V of Seetharampuram reserved forest (31 *acres*).—An area of 11 acres was dibbled with teak seeds at 10 seeds per stake 6 ft. by 6 ft. apart in April 1929 at a cost of Rs. 39. The percentage of success is 91.

Teak clear-felled coupe III of Walsugri reserved forest (31 *acres*).—Teak seeds were dibbled at stakes 6 ft. by 6 ft. apart in April 1929. Casualties were filled up in July–August 1929, with 1,100 teak stumps from nursery and also by notching 3,000 germinating teak seeds from dumps and also by planting transplants. The cost of the operation was Rs. 13. The percentage of success was 66 in the case of dibbles and notches and 80 in the case of transplants.

Lower Godavari.—An area of 64 acres of coupe VI of Kandikuppa reserved forest was planted with casuarina at a cost of Rs. 1,449. The planting was carried out in July. In October owing to severe gale the casualties were heavy but they were replaced. The plants have stood the hot weather well and it is estimated that

the casualties in May 1930 were only about 10 per cent and which also will be replaced during the current year and watered for about six months at an estimated expenditure of Rs. 220. The casualties in coupe V planted in the previous year were also replaced between July and December 1929 at a cost of Rs. 175. In July 1930 the number of survivals in the coupe was 46,655 giving a percentage of nearly 93.

Nellore.—An area of 52 acres of coupe I of the Casuarina Planting Series C in the Sriharikota range was planted during the year at a cost of Rs. 1,129. The planting distance adopted was 7 ft. by 7 ft. Due to lack of rains the planting was commenced late on 22nd August 1929. The number of casualties by the end of June 1930 has been estimated by the District Forest Officer to amount to only 3,400 and these were replaced in current year. The plantation is reported to have been well established and thriving.

(c) Afforestation.

18. Nil.

(iii) *Plantations and other forms of regeneration not under working plans or schemes.*

19. *Lower Godavari—Peddapur range.*—In the 10-acre plot in coupe I of Ammayagoppu Valley (Rajavommangi reserved forest) 8 acres were cultivated in 1927 and 9 acres in 1928. Thus one acre remained uncultivated and one acre was cultivated for one year, and the remaining 8 acres for two years. The whole area was planted up in June 1929 as follows :—

The one acre that remained uncultivated and one acre cultivated for one year and a portion of the 8 acres was planted with 'stumps' of 2-year old teak seedlings. The balance area was either planted with 1-year old seedlings with leaves scissored off and roots over 9 inches cut off or sown with teak seed in patches 6 ft. by 6 ft. The height growth of plants in the uncultivated plot was found to be decidedly the best. The results of the sowings were not satisfactory owing to poor rains.

In the 7-acre plot regenerated with teak in 1928 the plants in portion sown in patches and those sown from stumps are now more or less indistinguishable. The general height is about 15 feet in both cases, the tallest being 19 feet and 22 feet respectively.

Gokavaram range.—One experimental plot of 2 acres in each of the Sudikonda, Tirumalayapalem and Mallavaram reserved forests was as usual regenerated with teak at a total cost of Rs. 118. Teak seeds were dibbled in patches as usual. The experiments

having proved successful, a survey of the area suitable for raising teak is being undertaken with a view to frame a regular scheme so that planting may be done in future on a larger scale.

Plots in which teak was raised in 1927–28 are doing well. Of all these, the plot in Tirumalayapalem coupe VIII Series A is the best grown. The tallest plant is 22 feet high and the general height growth is about 18 feet.

(iv) *Tending of areas under regeneration.*

20. *Upper Godavari.*—Teak seedlings were tended by cutting weeds, climbers and regrowth of inferior species and of bamboos in all clear-felled and modified Taungya coupes.

Lower Godavari.—Coupe I of the casuarina plantation in Kandikuppa reserved forest was thinned during the year at a cost of Rs. 472. The 5-acre casuarina plantation grown on Government land by the Zamindar of Brahmasamedyam zamin (by mistake and since resumed by the department) and 2 acres of 1923 plantation were also thinned at a cost of Rs. 14.

In the Rajavommangi reserved forest weeding, working up of soil, etc., were carried out in the teak plots at a cost of Rs. 97. Similar work was done by the subordinates in the old plots of Rajavommangi, Vatangi and Lododdi reserved forests. Tending operations were also carried out in the Osurpad teak regeneration area (Papikonda reserved forests) at a cost of Rs. 40.

SECTION 2.—TENDING OF THE GROWING STOCK.

21. *Ganjam.*—The following works were carried out during the year :—

(1) Heaping and burning of refuse stuff and cutting back switch growth was carried out in following coupes :—

(*a*) Coupe XI, Plains Sal Timber Working Circle, Series I, in Galley reserved forests (134 acres), at a cost of Rs. 539 (work completed in April 1930).

(*b*) Coupe XI, Plains Sal Timber Working Circle, Series II, in Kriamba reserved forests (37 acres), at a cost of Rs. 148.

(*c*) Coupe VIII, Ravine Working Circle, Rambha reserve (113 acres), at a cost of Rs. 455 (work completed in June 1930).

(2) *Cleaning operations* were conducted in the following coupes :—

(*a*) In coupe X (Miniari compartment), Plains Sal Timber Working Circle, Series I, Gallery reserve (138 acres), at a cost of Rs. 407.

(*b*) In coupe X, Plains Sal Timber Working Circle, Series II, Kriamba reserve (39 acres) at a cost of Rs. 98.

(*c*) Coupe VII, Ravine Working Circle Rambha reserve (50 acres), at a cost of Rs. 125.

(3) *Second cleaning* was made in following coupes:—

(*a*) Coupe IX of Series I, Plains Sal Timber Working Circle, Brahmanasai reserve (133 acres), at a cost of Rs. 167.

(*b*) Coupe IX of Series II, Kriamba reserve (44 acres), at a cost of Rs. 110.

(*c*) Coupe VI, Ravine Working Circle, Rambha reserve (44 acres), at a cost of Rs. 110.

(4) *Thinnings* were done in—

Coupe VI of Plains Sal Timber Working Circle, Series I, Chendragiri reserve, Kukuluba range (144½ acres), at a cost of Rs. 419.

Coupe VI of Plains Sal Timber Working Circle, Series II, Periodic Block I, Buguda range, Kriamba reserve (55 acres), at a cost of Rs. 138.

Coupe III of Ravine Working Circle, Rambha reserve (53 acres), at a cost of Rs. 86.

Thinnings were also done in the Pole Working Circle in—

Mojjogoda range over 19 acres at a cost of Rs. 29.

Russellkonda range over 216 acres at a cost of Rs. 314.

Bontha range over 50 acres at a cost of Rs. 75.

Buguda range over 296 acres at a cost of Rs. 465.

Surada range over 709½ acres at a cost of Rs. 1,047.

Upper Godavari.—Congested patches of teak in teak clear-felled coupes I and II of Rekapalle Hill reserved forest and coupes I, II and III of Ramachendram reserved forest aggregating to 15 acres were thinned at a cost of Rs. 16.

Lower Godavari.—Creepers were cut in the felled coupes of Gokavaram range at a cost of Rs. 77. In the Polavaram range cleaning and creeper-cutting was done in the worked timber coupes of Kopalli and Bedadavole reserved forests while soft-wooded species in unworked teak areas in Bedadavole and Kopali were girdled at a cost of Rs. 127. In the timber coupes of Kopalli and Kovvada the canopy was slightly opened in carrying out a cleaning operation in the interests of the teak regeneration existing on the ground at a cost of Rs. 10. Climbers in the felled fuel coupes of Dewancheruvu reserved forest were cut at a cost of Rs. 41.

Climbers were cut by beat subordinates during their patrol.

Nellore.—Sandal was tended on the Kambakkam plateau wherever necessary.

General.

22. *Vizagapatam.*—The sandal sowings carried out in May 1929 in the Dharakonda, Senivaram and Burna reserved forests were a failure. Even germination was very poor and the very few seedlings which came up died subsequently due to failure of rains in the latter part of the year. The germination of sandal is often known to be poor and to achieve some success seeds must be sown repeatedly during the rains, as one sowing is often not enough. The District Forest Officers are being instructed accordingly.

The sandal plants in reserves and rest-house compounds grown in previous years were enumerated in March 1930 and in all 1,969 are found to be doing well and many have become seed-bearers.

Ten thousand one hundred palmyra seeds were sown round the felled coupes in Arlova, Madalammakonda, Pedimikonda and Karaka reserved forests in the Narasapatam range. The results were poor owing to failure of rains in the latter part of the year and severe summer.

The Divi-Divi plants reported to have been surviving in previous years are doing well. Ten pounds of seed were sown in blanks in felled coupes and germination was good. Fifty per cent of the germination survived.

Creeper-cutting in Sal coupe II and Sal coupes XIV to XVI totalling 76 acres was done at rate of Re. 1 per acre. In the leased coupes creeper-cutting was done by contractors.

A sum of Rs. 20 was spent for the eradication of Lantana in Arlova and Karaka reserved forests.

Upper Godavari.—In Kansulur and Lakkavaram reserved forests climbers were cut at a cost of Rs. 3-6-0 during District Forest Officer's tours. Climbers were also cut by subordinates during their patrol.

Lower Godavari.—The growth of teak and sandal in the areas regenerated is fairly satisfactory in Peddapur range and natural regeneration of local timber species is good.

Guntur.—Sandal seeds were dibbled in twenty $\frac{1}{4}$-acre plots in Kondapalli reserved forests. The plots were fenced all round and the seeds dibbled under heavy bushes in the second week of June 1929. Germination started at the end of September 1929 but most of the seedlings died in February and March 1930.

Babul sowings in the bed of the breached Nayudupalem tank in Bollapalli Extension 7 reserved forest of Vinukonda range was continued. Five more acres were taken up and as in previous years the plot was given for cultivation of cotton after tree growth was sold by the department. The cultivators cleared all rubbish and thoroughly ploughed up the plot and fenced it. Two thousand and nine hundred sheep and 500 goats were penned in the plot for five days in July 1929 and fed on five cartloads of babul pods. The seeds which had thus passed through the intestines of sheep and goats were ploughed in and germinated extremely well and by the end of the year the seedlings were from 6 feet to 9 feet in height.

This work has now gone on for four years and in all 20 acres have been regenerated with babul. The results in the whole have been excellent though over small bits the babul has not come up very dense. Hence after inspection it was ordered by Conservator that in future the area to be regenerated annually should be increased to 20 acres and this can be arranged, as there is keen demand from neighbouring villagers for more lands for cultivation.

Nellore.—The area of 5 acres in which dibbling of sandal was unsuccessfully attempted in the previous year was again attempted this year by sowing in pits. It was again a failure. Three propogation centres were selected in suitable areas and 22 beds were prepared. Sandal was sown in these beds and watered. By end of January 1930, 875 seedlings had come up in these beds.

CHAPTER IV.—EXPLOITATION.

(*a*) System of Management.

(i) *Major produce.*

23. The sylvicultural systems in force were—

Clear-felling—Ganjam.—In the Ghumsur forests clear-fellings and regeneration of Sal under the uniform method were carried out in both the series of the Plains Sal Timber Working Circle and Ravine Working Circle as detailed below :—

Series I, Periodic Block I.—In coupe XI of this series located in the Kutnikuppa and Miniari blocks of Gallery reserved forest in Mojjogoda range, the standing growth was sold in two portions. Kutnikuppa block, 88 acres, was sold for Rs. 10,648 at Rs. 121 per acre and the Miniari block, 44 acres, for Rs. 2,622 at Rs. 57 per acre.

Series II, Periodic Block I.—Kriamba coupe XI of 37 acres in Buguda range was sold for Rs. 2,627 at Rs. 71 per acre.

Ravine Working Circle.—Coupe VIII of 113 acres in Rambha reserve was sold in February 1929 for Rs. 2,938 at Rs. 26 per acre.

Vizagapatam.—An area of 14½ acres of Sal coupe III and 2 acres of sample plots in each of Sal coupes I and II were clear-felled. The yield of saleable timber was 2,061 cubic feet which was transported for sale to the Viraghattam depot in the plains. About 2,340 cubic feet of remnant timber which could not stand the cost of transport to Viraghattam were sold *in situ* for a low sum.

Upper Godavari.—The coupes clear-felled and the financial results are as follows:—

Range.	Reserve and coupe number.	Yield in cubic feet.		Area in acres.	Gross expenditure.	Gross revenue.	Cost per acre.	Net revenue per acre.
					Rs.	Rs.	Rs.	Rs.
Pulusumamidi.	Walsugri C. No. III.	Teak ..	6,123	31	1,520	14,970	49	434
		Non-teak ..	4,830					
		Total ..	10,953					
Marrigudem ..	Seetharam-puram C. No. V.	Teak ..	6,003	31	1,334	12,973	43	375
		Non-teak ..	3,743					
		Total ..	9,748					
Do. ..	Ramachendram C. No. IX.	Teak ..	9,041	58	2,627	21,273	45	320
		Non-teak ..	7,098					
		Total ..	16,139					
Bhadrachelam.	Dummugudem C. No. V.	Teak ..	8,525	57	2,592	13,836	46	197
		Non-teak ..	3,917					
		Total ..	12,442					
Do.	Tunikicheruvu C. No. IX.	Teak ..	3,451	33	1,598	7,927	42	167
		Non-teak ..	5,289					
		Total ..	8,740					
Cherla ..	Peddamidi-sileru C. No. II.	Teak ..	1,451	25	650	1,449	26	32
		Non-teak ..	360					
		Total ..	1,811					

Lower Godavari.—Timber coupes VIII of Bedadavole and VI of Kopalli reserved forests of 40 acres and 54 acres respectively were leased out to contractors for Rs. 1,300 and Rs. 4,005 respectively. The yield was as follows:—

Bedadavole coupe VIII—

	C.FT.
Teak	3,540
Other species	8,000
Fuel	980

Kopalli coupe VI—

	C.FT.
Teak	5,000
Other species	3,400
Fuel	2,060

Selection fellings—Ganjam.—No selection fellings were carried out during the year in reserved forests, but 910 logs of 10,576 cubic feet were extracted during the year from the unreserves adjoining Brahmanasai reserve and sold for Rs. 4,510.

Vizagapatam.—Dead and dying Sal trees of 4½ feet in girth and above were removed from Sal Block III of the Palakonda Sal scheme, the quantity of timber extracted being 1,961 cubic feet.

Improvement fellings.—Nil.

Simple coppice.—The fuel coupes in all the divisions were worked under the simple coppice system. The only exception was in *Guntur* where coupe contractors were prohibited from felling trees of superior species of below 9 inches in girth, the idea being that these should serve as future seed-bearers.

Unregulated fellings.—These were as usual confined to the unreserved lands in all divisions, but mainly of *Upper Godavari* and of Rampa in *Lower Godavari.*

In *Upper Godavari* 431 logs of 4,219 cubic feet (of which 299 logs of 2,823 cubic feet were teak) were extracted from coupe XII of Cherla range and sold for Rs. 7,315 at the river bank. Three hundred and fifty-one trees marked in coupe VIII of Nugur range and 193 trees marked in coupe XIII of Cherla range were sold standing to contractors for Rs. 6,932 and Rs. 1,930 respectively (all these three coupes were located in unreserves).

About 278,000 cubic feet of timber was removed from the unreserves of *Lower Godavari* including Rampa during the year and an amount of Rs. 28,900 was realized.

Taungya—Upper Godavari.—The saleable non-teak timber extracted from Taungya coupe III of Lakkavaram reserved forest (20 acres), viz., 942 logs of 4,691 cubic feet was carted to Chintur revu and sold for Rs. 3,768.

The modified Taungya system of working the non-teak areas in Pulusumamidi and Lakkavaram ranges (to the east of the Sebari) has been found to be unsatisfactory and not appreciated by the Koyas for whose benefit this system was introduced in the year 1925. Under this arrangement the department after felling saleable timber used to hand over area to Koyas for felling of remaining growth, burning and regeneration, in return for permission to raise

food-crops. Hence this system will be changed into one of clear-fellings followed by departmental burning and artificial regeneration in suitable localities. All future working in non-teak forests will be carried out under this clear-felling system.

(ii) *Minor produce.*

24. *Bamboos and minor produce.*—The right to collect bamboos from reserves was, as usual, leased out to contractors in all the divisions. But in *Upper Godavari* permits were also issued to local people for removal of bamboos from coupes not leased out during the year.

Bamboos were sold on permits on a large scale from the unreserves of *Lower Godavari* and Rampa.

Minor produce was generally leased out to contractors except in the Sriharikota range of *Nellore* district where it was collected departmentally to afford congenial employment to the Yanadis. In Vizagapatam district the hillmen of the Agencies are allowed to collect minor forest produce free. Most of this produce is brought by them for sale at recognized shandies and where seigniorage is collected at fixed rates from purchasers. The right to collect seigniorage was leased out by auction and fetched a sum of Rs. 7,150. In Rampa the same system prevails but seigniorage is collected by the department at recognized shandies ; the amount realized being about Rs. 38,500.

Only in *Lower Godavari* was the right to collect nux-vomica sold separately for Rs. 240. Elsewhere it is sold along with other kinds of minor forest produce.

Cassia auriculata (*tangedu*) *bark.*—In *Vizagapatam* and *Upper Godavari* the right to collect could not be sold for want of demand and it is never leased out in *Ganjam* as it does not occur in sufficient quantities. In *Lower Godavari* it was sold for Rs. 825, in *Guntur* for Rs. 1,245 and in *Nellore* the revenue realized for 1929–30 was Rs. 6,984. The tangedu market was extremely poor due to import of enormous quantities of wattle bark from Australia and several of the small local tanneries had to be closed completely or were working for part-time. The comparatively high revenue for *Nellore* was due to the fact that in this district the right to collect tangedu bark was leased out for three years from 1928–29.

Cassia fistula bark.—The right to collect this produce was leased out in Balliguda Agency and Russellkonda range in *Ganjam* for a sum of Rs. 805. Elsewhere there was no demand for this produce.

Tumki leaves.—The right to collect these leaves from the reserves and unreserves of *Upper Godavari* was sold as a separate unit for Rs. 2,435. These leaves are used for the manufacture of

bidis. There are fairly large bidi-making concerns at four centres in *Guntur* district where annually large quantities of tumki leaves are utilized.

Fodder grass and hay.—In *Ganjam* the right to cut grass in Napier's Park was leased out for Rs. 16. The Revenue Department realized Rs. 50 by sale of grass in unreserves of *Ganjam*.

Grazing was as usual regulated by issue of a single permit for the whole range, except in *Nellore* where grazing is regulated by the kancha system which is a great improvement from the point of view of cattle-owners.

Lower Godavari.—Free removal of fodder and thatch grass for domestic purposes was permitted as usual from all reserves except Coringa, Coringa extension and Kandikuppa where the right of removal was leased out for Rs. 405. Fodder grass in Samalkot Cantonment ground was as usual leased out and Rs. 1,200 were realized.

In Nellore free removal of grass was allowed from the closed areas attached to kanchas under the control of the kanchadars, in return for good protection of these areas.

Manure leaves.—In Nellore the right of collecting leaves of only herbaceous species in Sathiavedu range was sold for Rs. 534. Elsewhere there is said to be no demand for manure leaves.

(*b*) Agency of exploitation.

(i) *Departmental Agency.*

25. The outturn of major produce by departmental agency is compared with that of the previous year in the following table :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos value.	Minor forest produce value.
			Rs.	Rs.
1928-29	212	67	359	8,294
1929-30	120	49	387	14,307

The large decrease under timber occurs mainly in *Ganjam* due to stoppage of all departmental extraction of timber consequent on the closure of the Russellkonda Saw Mill and to leasing out to contractors the coupes in the Plains Sal Timber Working Circle and Ravine Working Circle instead of working them departmentally.

The decrease under fuel was in *Ganjam* where due to the stoppage of departmental extraction of timber there were no top

portions of trees available for sale as fuel and in *Upper Godavari* due to less demand of fuel for Public Works Department steamers.

The difference under bamboos is small.

The increase under minor forest produce is due to better crop of soapnuts, nux-vomica and tamarind in Sriharikota range of *Nellore* district. These very important crops failed in previous year as a result of the cyclone of November 1927.

(ii) *By purchasers.*

26. The following statement shows the quantity of major produce and the value of minor produce removed by purchasers during the year and in the previous year :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Grass and grazing.	Other minor produce.
			Rs.	Rs.	Rs.
1928–29 ..	606	5,327	1,28,312	1,15,087	1,18,503
1929–30 ..	863	3,081	1,65,189	1,13,679	1,17,083

The increase under timber was in *Ganjam* due to sale of timber coupes in Plains Sal Timber Working Circle and Ravine Working Circle instead of working them departmentally and in *Vizagapatam* to increased removals from unreserves consequent on larger number of assignments of lands.

The decrease under fuel occurs in *Ganjam* due to the area of the pole and fuel coupes sold during the year being less than that of the previous year and in *Nellore* it was due to the fact that two coupes in ryots' forests (Venad and Pernad) which were leased for felling on a three years contract from 1926–27, were worked in 1928–29. Also as fellings in several coupes remained incomplete by March 1930.

The increase under bamboos occurs mainly in *Lower Godavari* due to excellent prices realized for coupes and to larger removals on permits from Rampa and other unreserves.

The slight decrease under grazing was due to realization in the previous year of the lease amount of two years for fodder grass of the Samalkot Cantonment ground.

The slight decrease under minor produce is accounted for by very poor sales of tangedu bark leases due to lack of demand for this bark by tanners.

(iii) & (iv) *By right-holders and under privileges and free grantees.*

27. The following table shows the quantity and value of the produce removed under this head :—

Year.	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos.	Grazing.	Other produce.	Total.
		Rs.		Rs.	Rs.	Rs.	Rs.	Rs.
Right-holders ..	1	55	..	..	..	1,418	..	1,473
Free grantees ..	112	10,629	128	14,965	913	13,998	1,176	41,681

Ganjam.—The Khonds of Chokkapad khandam have a right for free removal of timber, etc., for their domestic and agricultural purposes and free grazing of cattle. The Khonds elsewhere than in Chokkapad were granted concessions for rendering the necessary help in putting out fires.

Vizagapatam.—Free grazing to the extent of Rs. 1,109 was allowed in Dharakonda, Senivaram and Karaka reserved forests to inhabitants of neighbouring villages for services rendered in fire-protecting forests.

Lower Godavari.—The Koyas and Reddis of the Agency continued to enjoy the free removal of unclassified timber for domestic and agricultural purposes.

Free grants of timber and minor forest produce were made in all the districts mainly for rebuilding houses destroyed by fire. The value of free grants during the year was only Rs. 10,629 as against Rs. 62,030 in 1928–29 in which year extensive grants of timber, etc., had to be made for rebuilding houses destroyed in *Nellore* district by the cyclone of November 1927. The fuel supplied to the Port Conservancy Board, Cocanada, from the Coringa Extension reserved forest is also shown under free grants as according to orders of Government the Forest department has to supply annually up to 1,600 tons free of cost.

(c) Outturn and sources of Forest produce.

28. The total outturn from all agencies is compared in the following statement :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Gross value of minor forest produce including grass and grazing.
			Rs.	Rs.
1928-29	1,286	5,461	1,29,575	2,61,351
1929-30	1,096	3,258	1,66,489	2,61,665

Reasons for variations have been furnished in the details given above.

CHAPTER V.—FINANCIAL RESULTS.

29. The following figures show the financial position of the Circle as compared with that of the previous year :—

	1928-29	1929-30
Receipts.		
	RS.	RS.
Revenue	11,35,573	10,96,594
Deduct Refunds	2,503	8,978
Net revenue ...	11,33,070	10,87,616
Expenditure.		
Conservancy and maintenance ...	1,37,769	1,51,669
Establishments	4,92,185	4,58,339
52-A. Capital Outlay on Forests.	39,861	43,854
Total expenditure ...	6,69,815	6,53,862
Surplus	4,63,255	4,33,754

The following statement shows the financial position of each division during the year under report and a comparison of surplus or deficit with that of previous year :—

Division.	1929-30.			Surplus or deficit in 1928-29.
	Revenue.	Expenditure.	Surplus or deficit of 1929-30.	
	RS.	RS.	RS.	RS.
Ganjam	2,58,241	1,43,431	+ 1,14,810	+ 1,86,087
Vizagapatam	53,341	47,242	+ 6,099	+ 10,335
Upper Godavari	1,54,961	1,20,533	+ 34,428	+ 40,350
Lower Godavari . ..	3,09,923	1,25,015	+ 1,81,908	+ 1,49,891
Guntur	1,56,136	74,635	+ 81,501	+ 75,304
Nellore	1,54,853	1,00,580	+ 54,273	+ 49,381
Direction	161	39,426	— 39,265	— 48,093
Total ..	10,87,616	6,53,862	+ 4,33,754	+ 4,63,255

The above statement shows that all divisions worked at a profit during the year. The large variations in surplus of two years in case of *Ganjam* and *Lower Godavari* are due to causes explained below :—

In *Ganjam* the surplus decreased by about Rs. 71,000 and was due to adjustments and recoveries made by commercial auditors on account of Russellkonda Saw Mill which stopped working in June 1928.

The following are the details :—

	1928-29	1929-30
	RS.	RS.
Profits from Government commercial undertakings	44,929	...
Recoveries of investments on Government commercial undertakings	1,41,985	1,21,000
Recovery of indirect charges	450	...
Total ...	1,87,364	1,21,000

Thus the decrease due to saw mill alone amounts to Rs. 66,364. There was also a fall in timber revenue as some Sal coupes were not sold due to poor prices offered.

In *Lower Godavari* the increase of surplus was under bamboos (+ Rs. 37,777) and minor forest produce (+ Rs. 19,415) removed by consumers and purchasers and was due to larger removals of bamboos from Rampa and enhancement of seigniorage rate on tamarind from As. 1-6 to 2 annas per maund. This very large increase under bamboos and minor forest produce was partly set off by a decrease of about Rs. 14,000 in the revenue realized from firewood.

The decrease of deficit under direction was due to a junior Conservator drawing lesser pay being in charge of the Circle during 1929-30 and as the Special Forest Officer, Rampa, was attached to the Circle office during the rainy season recess of 1928.

The important variations between the actuals of 1929-30 and those of the previous year are explained below :—

RECEIPTS.

(*a*) *Timber and other produce removed by Government Agency*—(2) (1) *Timber* (— *Rs.* 70,406).—The decrease occurs chiefly under *Ganjam* (— Rs. 52,728), *Upper Godavari* (— Rs.14,608) and *Lower Godavari* (— Rs. 2,009).

In *Ganjam* the decrease was due to stoppage of departmental operations due to complete closure of the Russellkonda Saw Mill while in the previous year it was working for the first three months. It is also partly due to the fact that very large quantities of accumulated mill rejected logs were sold in 1928-29.

In *Upper Godavari* the decrease was due to no modified Taungya coupe having been worked departmentally in the Pulusumamidi range on account of change of system of working into one of clear-felling; to the revenue from timber in the Nugur unreserve coupe of the year having been realized in 1928-29 and to less yield of

timber from teak clear-felled coupes in 1929-30; and in *Lower Godavari* to there being no departmental exploitation of timber in the year pending results of experiments in Ammayagoppu Valley of Rajavommangi reserved forest.

iv. *Other minor produce* (+*Rs.* 5,976).—The increase occurs in *Nellore* and is due to larger collection of minor forest produce and better prices realized for the same.

(*b*) *Timber and other produce removed by consumers and purchasers—Forest Department—*(*i*) *Timber* (+*Rs.* 19,398).—The increase occurs in *Upper Godavari* (Rs. 16,393) and *Lower Godavari* (Rs. 5,678). The increase in *Upper Godavari* was due to leasing out unreserve coupe XIII of Cherla range instead of departmental working and to assignment of a larger number of darkhast lands; and in *Lower Godavari* to removals of larger quantities of timber from Rampa on permits. The increase is partly counterbalanced by decrease in *Ganjam* (—Rs. 2,490) due to the decision to work the 1930–31 Plains Sal Timber Working Circle coupes departmentally on account of poor rates offered at sales. If leased out part of sale amounts would have been realized in 1929-30.

Firewood and charcoal (+*Rs.* 6,420).—The increase occurs in *Nellore* (+Rs. 22,595) due to very good prices realized for the fuel coupes in Sriharikota range, but this is partly counterbalanced by decrease in *Lower Godavari* (—Rs. 14,163) due to realization in 1928-29 of arrears of previous year's dues from the Cocanada Port Conservancy Board for fuel supplied to it from Coringa reserve.

Bamboos (+*Rs.* 36,782).—The increase was entirely in *Lower Godavari* (Rs. 37,777) and is due to larger removals of bamboos from Rampa and to better prices realized for bamboo coupes.

Grazing and fodder grass (— *Rs.* 1,801).—The decrease occurs in *Lower Godavari* and was due to less number of delta cattle sent for grazing in reserves owing to late rains.

Other minor forest produce (+*Rs.* 16,825).—The increase occurs in *Lower Godavari* (Rs. 19,415) and was due to a good crop of tamarind in Rampa and to enhancement of seigniorage rate on tamarind from As. 1-6 to 2 annas per maund.

By Revenue Department—

(i) *Timber* (+Rs. 12,318) occurs in *Ganjam* and is said to be due to larger assignments of lands on darkhast.

(ii) *Firewood and charcoal* (— Rs. 7,949) occurs in *Ganjam* (Rs. 2,964) and *Nellore* (Rs. 3,698).

(iv) *Other minor forest produce* (+Rs. 6,434) occurs in *Lower Godavari* (Rs. 6,728).

These are fluctuating items and no explanations for variations have been furnished by District Forest Officers concerned.

(*c*) *Drift and waif wood and confiscated forest produce* (+*Rs.* 2,026).—The increase occurs mainly in *Upper Godavari* (Rs. 1,305) due to driftwood salved in 1928-29 having been sold during the year under report.

(*d*) *Profits from Government commercial undertakings* (—*Rs.* 44,929).—The Russellkonda Saw Mill having completely stopped working, there was no profit to show during the year.

(*e*) (i) *Fines and forfeitures* (+*Rs.* 922).—The increase amounts to about 16 per cent and is a fluctuating item.

(*f*) *Recoveries from investments on Government commercial undertakings* (—*Rs.* 20,985).—The explanation for the difference is that more assets of the mill in liquidation could be disposed of in 1928-29 than in 1929-30, i.e., the realization in 1929-30 was less than in 1928-29. They are adjustments made by the Accountant-General, after leaving a balance of about Rs. 5,000 for current liquidation expenses. The book value of the assets yet to be sold is Rs. 1,47,203, practically whole of which represents the value of machinery which could not be yet disposed of.

Deduct refunds (+*Rs.* 6,475).—This occurs in *Lower Godavari* (Rs. 3,824) and *Guntur* (Rs. 1,124). The increase is due to adjustments made by the Accountant-General in his summary for September 1929 being amounts creditable to Public Works Department and Local Fund Department towards tree-owners' fees realized in 1928-29.

EXPENDITURE.

8. *b. Conservancy and Works—I. Timber, etc., removed by Government Agency—Timber* (—*Rs.* 22,439).—The decrease occurs chiefly in *Ganjam* (Rs. 21,584) and was due to departmental exploitation for supply to the saw mill having been completely stopped in 1929-30, whereas in previous year mill worked for three months and so there was some collection of timber.

Firewood and charcoal (—*Rs.* 2,277).—The decrease occurs in *Ganjam* (Rs. 2,105) and is due to the debit of the cost of thinnings to "V. Other Works" instead of to this head as used to be done in previous years.

Grass and other minor forest produce (+*Rs.* 1,318).—The increase occurs in *Nellore* due to collection of a larger quantity of minor forest produce in the Sriharikota range.

II. Timber, etc., removed by private agency (+*Rs.* 6,083).—The increase occurs in *Ganjam* (Rs. 2,387), *Upper Godavari* (Rs. 2,335) and *Guntur* (Rs. 1,823) and is due to the entertainment of a larger number of watchers during the current year and to charging to this head the pay of excess guards. There is corresponding saving under Pay of establishments—Voted—Permanent.

III. Renewals and replacements of stores, tools and plant (+*Rs.* 18,727).—The increase occurs almost entirely in *Nellore* (Rs. 18,299) and is due to the purchase of $3\frac{7}{8}$ miles of new tram-track to replace unserviceable old stock, for extraction of fuel in Sriharikota range.

IV. Communications and buildings—

	Rs.
Roads and bridges	+ 797
Buildings	+1,609

The increase is distributed in small sums in all districts.

V. Conservancy and regeneration—Regeneration (+*Rs.* 1,906).—The increase occurs in *Upper Godavari* (Rs. 886) and *Lower Godavari* (Rs. 1,025). In *Upper Godavari* it is due to tending of old clear-felled and Taungya coupes and in *Lower Godavari* to—

(1) compensation paid to the Zamindar of Brahmasamedhyam Agraharam towards the cost of raising casuarina on the portion of Kandikuppa reserved forest encroached by him and which was taken over by the department;

(2) to excess expenditure having to be incurred on coupe V of Kandikuppa casuarina plantation of 1928-29 in addition to cost of planting coupe VI of 1929-30 as in coupe V the casualties were very heavy.

Other works (+*Rs.* 3,033).—The increase occurs chiefly in *Ganjam* (Rs. 2,457) and was due to undertaking arrear thinnings in pole coupes.

VI. Miscellaneous (+*Rs.* 2,582).—The increase occurs in *Lower Godavari* and represents the forest compensation paid to muttadars in Rampa which is charged to " 8.b. Forest Conservancy and Maintenance " for the first time in 1929-30 under orders issued in G.O. No. 306, Finance, dated 15th April 1929.

52-*A. Capital Outlay on Forests*—1. *Forest surveys* (+*Rs.* 7,047).—The increase is due to the adjustment of the balance due to the Survey of India Department towards cost of special forest survey done in *Lower Godavari* including Rampa.

'*Sowing and planting* (+*Rs.* 858).—This occurs in *Nellore* and represents the amount spent during the year on planting coupe I of casuarina planting series in Sriharikota range.

Communications and buildings—Roads and bridges—

	Rs.
Works in progress	+2,449
New works	+6,369

The increase is due to undertaking of a larger number of road works in the year under report as detailed in Chapter II, the most important work undertaken being Kachalur road in *Lower Godavari* and on which Rs. 3,500 were spent.

Buildings—

	Rs.
Net difference	— 6,754
Works in progress	+ 3,809
New works	— 2,945

The expenditure varies according to necessity for new buildings.

Purchase of stores, tools and plant (—*Rs.* 8,640).—The decrease occurs in *Nellore* district and is entirely due to the debit of the cost of 2 miles of tram-track purchased in 1928-29 to Capital outlay while that purchased in 1929-30 was charged to 8.b. Conservancy and Regeneration, as it was intended to replace existing unserviceable stock.

8. *C.* i. *District Establishments—*

	Rs.
Pay of officers—Non-voted	+11,663
Do. Voted	— 9,449

The expenditure under these two heads varies according to number of Imperial and Provincial Service officers employed during any year.

Pay of establishment—Permanent (—*Rs.* 21,727).—The decrease is due to the reduction in the sanctioned strength of foresters and guards and to debit of pay of permanent forest guards (who being in excess of sanctioned scale are treated as watchers) to 8.b. Timber, etc., removed by consumers and purchasers.

Pay of establishment—Temporary (—*Rs.* 3,799).—The decrease occurs chiefly in *Ganjam* (Rs. 2,945) due to the non-entertainment of the full sanctioned strength of temporary foresters and

guards sanctioned, owing to existence of excess staff in the Circle due to transfer of reserves to panchayats.

				RS.
Travelling allowance—Non-voted	...	...	...	+3,399
Do. Voted	...	...	...	—9,406

The variations are due to the reasons given above under Pay of officers—Non-voted and Voted and to exercising economy in travelling allowance.

Non-contract Contingencies—Voted—Rents (—*Rs.* 2,578).—The decrease occurs in *Ganjam* (Rs. 592), *Lower Godavari* (Rs. 1,060), *Guntur* (Rs. 802) and was due to payment of arrears in 1928-29.

Supplies and services—Voted—Miscellaneous (+*Rs.* 1,485).—The increase occurs chiefly in *Lower Godavari* due to debit to this head of the amount of Rs. 1,200 written off having been lost in Polavaram range.

The outstanding revenue at the close of the year amounted to Rs. 1,01,047 of which Rs. 14,751 only fell due within the year against Rs. 16,749 in the previous year. Of the amount of Rs. 1,01,047 outstanding at the close of the year Rs. 57,721 represents balance of lease amounts of fuel coupes of 1930-31 in *Nellore* district which were sold in March 1930 and in which one-fourth lease amounts were realized in the year under report. Hence the large outstandings.

Of the revenue realized in the year 43 per cent was from major produce, 39 from minor produce and 18 from other sources.

Of the expenditure 8 per cent relates to exploitation, 24 to improvement and upkeep of forests and 68 to miscellaneous items.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

(*a*) RESEARCH.

30. Nil.

(*b*) EXPERIMENTS.

31. A plot of 5 acres in Arlova reserved forest in Narasapatam range of *Vizagapatam*, was cleared. After the debris was burnt, the ground was ploughed twice and seeds of tangedu (Cassia auriculata) were sown in furrows 3 to 4 feet apart. This experiment was started by the Deputy Forest Utilization Officer to find out if it would be economically possible to raise dense crops of tangedu and thus reduce cost of collection of bark. For, with the large imports of wattle bark from Australia, the tangedu bark may go out

of the tanning industry, unless it can be produced at a cheaper rate than at present. The experiment so far has been a success as the area is now full of healthy-looking seedlings, a few of which even flowered within one year. The work was carried out by Range Officer, Narasapatam, and total cost (including fencing) amounted to Rs. 38 for 5 acres.

Ganjam—Testing unsoundness in the oldest Sal pole coupes.—With regard to the question of raising the rotation of the Plains Sal Pole Working Circle from 25 to 40 years, the Conservator suggested an experiment for testing unsoundness of the oldest coppice crops that had reached the age of 25 years. The first coupes of Kullada, Gundribadi and Kontaipalli series were chosen. A sample strip 11 feet wide was cut across each coupe and every Sal tree was felled close to ground and the stumps examined by the Working Plan Officer, *Ganjam*.

Percentage of unsound stems—

	PER CENT.
Kullada coupe I	17
Gundribadi coupe I	14
Kontaipalli coupe I	26

The unsoundness originated from two sources. Firstly, a kind of heart rot that rendered the heartwood white and powdery, and secondly, unhealthy occlusion around the decaying stool accompanied by termite attack. The percentages of unsoundness in the 25-year old coppice crops varied from 14 to 26 and, considering that the crop is only in its first rotation period of improvement, it cannot be considered so high as to prevent our increasing the rotation beyond the present limit of 25 years.

Ravine Working Circle—Sal regeneration experiments.—Sal seedlings were enumerated in Ravine experimental plots 1, 2, 3 and 4 near Rambha, in order to ascertain the survivals of sowings made in June 1928. The results are expressed below:—

Number of plot.	Area.	Nature of sowing (made in June 1928).	Quantity of seeds used.	Number of seedlings alive in July 1929 in each plot.	Number of seedlings alive per acre [worked out from figures in column (5)].
(1)	(2)	(3)	(4)	(5)	(6)
	SQ. CH.		BAGS.		
1	2½	Seeds broadcast ..	1½	2,318	9,272
2	2½	Germinating seeds broadcast.	2¼	2,437	9,748
3	1	Seeds dibbled	½	2,019	20,190
4	1	Seeds broadcast	½	825	8,250

The most successful plot is No. 3 where seeds were dibbled, as here seedlings have survived to the extent of over 20,000 per acre.

The seeds dibbled in the ground did not attract wild animals and being imbedded in the soil they germinated more quickly and got immediately rooted than broadcast seeds. This is an important factor in case of Sal as seeds do not keep for a long time.

In plot No. 5 where 64 Sal stumps had been planted in June 1928, enumeration showed 6 stumps or 9 per cent to be dead in July 1929.

The object of this experiment was to determine the best method of establishing adequate Sal regeneration in the Ravine Working Circle, as natural regeneration of Sal is uncertain in the typical ravines. The results of sowings were remarkably good but it must be remembered that a large quantity of very thoroughly selected seeds was used—the Working Plan Officer having selected $2\frac{1}{2}$ bags of sound large seeds from a quantity of $23\frac{1}{2}$ bags collected and in addition he used $2\frac{1}{4}$ bags of germinating seeds.

Upper Godavari.—With a view to find out the rate of girth increment of individual Satinwood trees in a mixed crop and in a pure crop, experimental plots were opened in Tunikicheruvu and Bandirevu reserved forests in 1922 and Ramachendram reserved forest in 1924. Girths of trees in five plots in the first two reserves were measured by the District Forest Officer in March 1930. The conclusions arrived are: (1) the results in each plot agree closely; (2) they show a steady girth increment of $\frac{1}{4}$ inch per annum. This disposes of the theory that Satinwood trees of this type and girth class are stationary, i.e., not growing appreciably.

Plots to conduct regeneration experiments with Hardwickia binata were selected and demarcated and Yepi seed collected during the year at a cost of Rs. 17.

Lower Godavari.—The teak plots in the Tirumalayapalem, Mallavaram, Rajavommangi and Vatangi reserved forests were thriving well. In Ammayagoppu Valley of Rajavommangi reserved forest the regeneration from teak 'stumps' was successful while that from sowings was unsatisfactory owing to absence of rain. For the same reason in Gokavaram range the percentage of success was low in all the plots of the year. In Sudikonda reserved forest a portion of the 2 acres was planted up with stumps and it gave good results.

Guntur.—The experimental plots in Vinukonda range to find out a cheap and efficient method of regenerating the Yepi forests were continued. The results were not encouraging. The experiments carried out in Palnad range for improving the forests by artificial regeneration by sowings were not a success and the plots were closed. Instead this kind of work is now done in felled coupes in a systematic manner and results will be watched with interest. The sample plots in Muthayapalem reserved forest to find out the

effect of closure to grazing in mangrove forests were maintained. Observations show that wherever Mada (Avicennia) is well protected by strong fencing against the semi-wild cattle which are so fond of browsing this species, its growth is very good, the plants pushing up and losing their treebush appearance.

Nellore.—The three experimental plots opened in previous year and described in that year's report to obtain reliable data of the height and girth increment of certain species, to check the coppice growth of these species and to compare the rate of growth by retaining all the coppice shoots in some and by reducing the coppice shoots to one or two in others, were maintained. Results are being watched and are recorded in registers.

A plot of 5 acres was selected in Kambakkam reserved forest, cleared, fenced and ploughed and seeds of Cassia auriculata were sown. It is reported that thousands of seedlings have come up.

CHAPTER VII.—ADMINISTRATION.

32. Mr. J. H. Longrigg held charge of the Circle throughout the year.

33. The proposal to transfer the Kanigiri range of the *Nellore* division to the *South Kurnool* division of the II Circle was approved during the year and was given effect to from 1st April 1930. Extra Assistant Conservator, Mr. V. N. Seshagiri Rao, Special Forest Officer, made satisfactory progress with the selection and demarcation of blocks proposed for reservation in the Rampa Agency of the *Lower Godavari* division. He was able to select five new blocks and demarcate five more which were selected previously. He has also been appointed Forest Settlement Officer for the settlement of the areas proposed for reservation. Notifications under section 4 of the Madras Forest Act have been submitted in respect of the following blocks during the year under report:—

(1) Vedullakonda,
(2) Addatigala
(3) Dutcherti.
(4) Velamalakota.
(5) Musurumilli.
(6) Seetapalli.
(7) Etalapad.
(8) Kannaram.
(9) Lakshmipuram.

34. *Tours.*—The Chief Conservator visited the *Ganjam* district and toured in the Balliguda Agency in February 1930.

The Conservator spent 186 days in camp touring in all the divisions of the Circle.

All the District Forest Officers spent more than the prescribed minimum in camp.

35. *Inspection of District Forest and Range Offices.*—The Conservator inspected all the District Forest Offices in the Circle.

All the Range offices except one in *Upper Godavari* were inspected.

36. *Audit of accounts.*—The Accountant-General's staff inspected the accounts of all the divisions in the Circle for 1928-29 and the result was generally satisfactory.

37. *Vernacular Training School.*—No regular school was held for the Circle during the year. The second session of a subsidiary Vernacular Training School sanctioned in G.O. No. 979, Development, dated 1st July 1927, for training subordinates in the *Upper Godavari* division opened on 1st June 1929 and ended on 31st August 1929. Forester Y. V. Anjaneyulu (M.R.H.) was in charge of the school and carried out his duties satisfactorily. The school started with 12 guard students and closed with 11, one guard having been sent away from school owing to frequent illness. All the eleven students were awarded certificates. The health of the students except of one was satisfactory on the whole.

38. *Health of establishment and sanitation.*—The health of the establishment was as usual bad in the Agency tracts, the Kukuluba and Bontha ranges in *Ganjam* and Sriharikota range in *Nellore.*

One forest guard in *Ganjam*, one in *Vizagapatam*, one ranger and two forest guards in *Upper Godavari* and one forester in *Lower Godavari* died of malaria. One forest guard in *Upper Godavari* died of sunstroke.

No special measures of sanitation were undertaken by the Forest department, except keeping the surroundings of buildings cleared of vegetation to admit of free circulation of air. In the Golgonda and Gudem Agencies of *Vizagapatam* anti-malarial measures conducted by a special department, have been in progress at some important forest camps like Lambasingi and Chintala. Swamps are being drained and a species of clover and Sesbania aculiata are introduced, it being claimed that the mosquitoes which feed on these plants are rendered immune of the malaria parasites. Paris green mixed with dust is also thrown in streams.

CHAPTER VIII.—GENERAL.

39. *Formation and management of panchayats (to include the forest village system).*—All the ryots' forests in the Circle have been handed over to panchayats and are under the control of the Revenue department. In *Lower Godavari* division, the Upputeru Block II which was originally placed in class III was permanently transferred to class I.

The forest village system has not been introduced in any district of this Circle.

40. *Measures for improving local supplies and facilities (including water-supply, manure leaf, etc.).*—The wants of the people in respect of small timber, fuel and bamboos are met in all the divisions by opening of coupes wherever it is possible and where there is demand. The rates at which coupe contractors must sell produce in retail inside coupes for benefit of ryots are fixed in the agreements executed by the contractors and these rates are made known to the public through notification in the district gazettes. There was no demand for manure leaves in this Circle except in Sathiavedu range of *Nellore* where this produce was leased out. From the city of Cocanada complaints were received of high price of fuel. A deputation of members of the local District Association waited on His Excellency the Governor and prayed for opening of a fuel depot at Cocanada for sale of fuel at reduced rates, or to issue permits at seigniorage rates. The matter was fully investigated and it was found that no special steps are called for as the price of fuel was not high.

Guntur.—During the year 1929-30, the rains came late and were also scanty. On account of this, the people began to remove Yepi leaves for cattle fodder from the Government reserves unauthorizedly. Seeing that the situation was becoming bad, as large number of people were trying to enter the reserve for unlicensed removal, the District Forest Officer reported the situation to Collector and obtained orders to sell headload tickets for Yepi leaves at the rate of one anna per headload. The permits were actually issued only for Kandlagunta reserve (Palnad range) from 20th September 1929, and 308 tickets were sold, the amount realized being Rs. 19-4-0. By then there was a heavy shower of rain and the issue of permits was stopped. Permits were not issued for any other reserve.

As regards water-supply, six tanks in *Guntur* district were repaired by the department at a cost of Rs. 378 and permission was given to the public in twenty cases to repair tanks inside reserves. In the *Nellore* district Rs. 578 were spent in repairing ponds and tanks in grazing blocks.

41. *Timber Transit Rules.*—The rules are reported to have worked satisfactorily in all the districts. The proposal to introduce timber transit rules in *Nellore* district is still under correspondence with the Chief Conservator, the point to decide being as to whether or not regular checking stations (Tanas) are necessary.

42. *Jungle tribes—Ganjam.*—The Khonds continued to be on good terms with the department.

Vizagapatam.—The hill tribes availed themselves of the privileges conferred on them without complaint. They were employed by the department on timber fellings, roads, buildings, fire-protection and demarcation works and earned approximately Rs. 4,900.

Upper Godavari.—The Koyas and Reddis who form the chief source of labour supply continued to be useful and they were employed on all kinds of departmental works. Money rewards to the extent of Rs. 2,307 were paid to them for successful fire-protection during the year. Free removal of minor produce, fuel and timber, except reserved trees for domestic and agricultural purposes from unreserved lands was as usual allowed to them. Koyas and Reddis of the Bhadrachalam taluk are allowed free grazing in the reserves and also podu in the unreserves according to long-standing custom.

Lower Godavari.—The settlers in the Agency tracts rendered help to the department in return for which they were allowed the concession of grazing their cattle at one anna per cow or buffalo. Rewards amounting to Rs. 659 were also given to them for successful fire-protection in the Peddapur range.

Guntur.—Orders of Government have not yet been received on the question of granting lands to Chenchus in Palnad range referred to in the previous year's report.

Nellore.—About 250 Yanadis in all were employed on collection of minor forest produce and for casuarina planting in the Sriharikota range and an amount of Rs. 3,926 was earned by them as wages. In addition a reward amounting to Rs. 1,453 was granted to them in the shape of rice, cloth and cash. The Yanadis are reported to appreciate the system of saving money by deposits in the Postal Savings Bank from out of these rewards and withdrawals are allowed by the District Forest Officer only in cases of necessity. There are 75 such accounts, the total amount of deposit being Rs. 987 against Rs. 814 in the previous year.

43. *Mining and quarrying.*—The mining of mica is carried out in some of the ryots' forests (Class III reserves in Nellore district) which are under the control of the Revenue department.

In *Lower Godavari* a sum of Rs. 17 was realized on account of the removal of metal and gravel from reserves.

The Government in their Order Press No. 780, Development, dated 5th April 1930, have authorized the Forest department to charge other departments of Government and Local Bodies seigniorage on metal and gravel removed by them from forest areas.

44. *Livestock.*—The cow elephant Anarkali purchased in November 1928 at a cost of Rs. 4,005 died of enteritis and exhaustion in the Bhadrachalam Veterinary Hospital on 27th July

1929. Another cow elephant 'Chenchal Pyari' was purchased at the Sonepur cattle fair near Patna in Bihar at a cost of Rs. 3,704. She was marched all the way by road and took 110 days to complete the long journey of 1,067 miles. It was felt that the long march was too great a strain on the elephant specially because the severe hot weather in *Upper Godavari* had set in by the time the animal reached its destination. The total number of elephants in the Circle at the end of the year was three, two in *Upper Godavari* and one in *Lower Godavari*.

Other animals.—In the whole Circle there is now only one buffalo in the *Nellore* district maintained for carrying water to Kambakkam Hill bungalow from a stream which is at a distance of $1\frac{1}{2}$ miles.

45. *Veterinary establishment.*—The services of the Inspector of Livestock have not been utilized during the year.

46. *Wild animals.*—The man-eating tiger which for a long time gave so much trouble in Kukuluba range of Ganjam has not been in evidence and people are beginning to return to abandoned enclosures.

47. *Civil suits—Lower Godavari.*—The appeal preferred by the plaintiff in the Naramamidi (Litsæa polyantha) bark suit referred to in last year's report was dismissed with costs by the Additional Subordinate Judge, Cocanada, on 26th March 1930.

Nellore.—The two appeals filed by the ex-contractor Chenchurama Nayudu have not yet been disposed of by the High Court. These suits involving a sum of about 3 lakhs of rupees were decided in favour of Government in the Nellore Sub-Judge's Court during the current year, after a very strenuous fight put up by both parties. The excellent service in connexion with these suits, rendered by Range Officer, M.R.Ry. P. Varadakrishnamachari, deserves to be placed on record.

48. *Control of unreserved lands by the Forest department—Ganjam.*—In the matter of disposal of tree growth on banjar lands the Forest department is consulted where the estimated value exceeds Rs. 20 per acre or a total of Rs. 200 in each case.

Upper Godavari.—The unreserves in the division are under the control of the Forest department. Departmental extraction of timber was carried out as usual in the unreserves in the Nugur and Cherla ranges which are systematically worked by located fellings.

Lower Godavari.—Some of the unreserves in the agency portion of Yellavaram, Chodavaram and Polavaram divisions continued to be under the control of the Forest department. The five special unreserves formed with a view to prevent podu and destruction of the growth in them by goats, continued to be under the control of the Forest department.

49. The relations between the Revenue and Forest departments were cordial.

50. *Russellkonda Saw Mill.*—The mill stopped working in July 1928 and the disposal of the assets and winding up of the concern are proceeding.

By 31st March 1930 all the properties except machinery (valued at Rs. 1,41,580) and a few articles of stores were disposed of and the amounts realized are noted below:—

	Rs.	A.	P.
Buildings	1,15,753	13	2
Machinery	404	8	4
Furniture	3,681	7	7
General stores	181	6	2
Stationery	36	7	0
Sales of items not included in the accounts but sold	702	8	10
Sundry debtors	2,891	2	0
Total ...	1,23,651	5	1

The buildings and most of the furniture were transferred to the Public Works Department at their book value. Of the amount of Rs. 3,014-12-9 outstanding at the close of the previous year, the whole except Rs. 1,475-2-10 due from Messrs. Parry & Co. have been recovered during the year. The question of the recovery from Messrs. Parry & Co. is under the consideration of Government, as the company has objected to the refund of this amount. An amount of Rs. 5,071-3-11 including the above amount was outstanding at the close of the year under report.

To look after the machinery, etc., one fitter and two watchmen are employed and a recurring charge of Rs. 82-8-0 is incurred every month.

ENCLOSURE.

REPORT ON EACH FOREST DISTRICT FOR 1929-30.

GANJAM.

Description.—The main seat of the forest activity is in the Ghumsur and Surada taluks of the Ghumsur Revenue division where the extensive Sal forests have long been under close management. This tract is situated in the north-eastern portion of the district occupying the easternmost portion of the Eastern Ghats. The three reserves in the Mohiri Hills near the coast contain fuel and bamboos and are important as water catchment areas. The Eastern Ghats known as the Maliahs occupy the western part of the district. Here lie the forests of Balliguda Agency forming part of the District Forest Officer's charge since July 1927. They are capable of producing fine Sal but have been much

degraded by the Khonds through their shifting cultivation known as podu. The importance of these forests for purposes of water conservancy is great. The main activities of Forest department there at present are directed towards the reservation of the more important climatic forests and of those capable of producing big timber in localities where there is a reasonable chance of future development.

Area.—Reserved forests 625 square miles and 20·97 square miles of blocks in Balliguda Agency notified by the Agent under rule 2 of the rules framed under section 26 of the Madras Forest Act.

How the forest district is split up into subordinate executive charges.—The whole division excluding Balliguda Agency is divided into eight Ranges consisting of 71 beats. The Balliguda Agency forms a single executive charge under an Extra Assistant Conservator assisted by a Ranger.

Cost of administration—

	Rs.
District Forest Officer	33,983
Forest Rangers	18,444
Subordinate staff	32,800
Clerical and menial staff	14,986
Miscellaneous including contingencies	5,455
Total ...	1,05,668

Cost under other important heads—

Timber operations	955
Roads—New works	3,263
Do. Repairs	1,950
Regeneration—Other works	4,940
Protection from fire	7,121
Buildings—New works	1,205
Do. Repairs	8,879
Other miscellaneous items including pay of watchers	9,450
Total ...	37,763

Income from main sources—By Forest department—

Timber	42,363
Firewood	34,815
Bamboos	8,269
Grazing	9,692
Other minor produce	1,832
Miscellaneous revenue	10,992

	Rs.
Recoveries of investments on Government commercial undertakings (mainly realized by sale of buildings, etc., property of the Russellkonda Saw Mill under liquidation)	1,21,000
	2,28,963
Deduct—Refunds	303
Total ...	2,28,660

By Revenue department—

Timber	20,575
Firewood	4,000
Bamboos	333
Other minor produce	4,673
Total ...	29,581

The chief work done in the Forest district is—(i) In Ghumsur the supply of timber (mainly Sal) from three felling series ; Sal poles from about seventeen felling series; fuel and bamboos and regeneration of the felled areas.

(ii) In the Mohiri Hills, supply of fuel and bamboos.

(iii) In the Maliahs, restriction of shifting cultivation (podu) to be followed by forest settlement, conservancy and general development by roads and buildings.

Parlakimedi Maliahs.

Parlakimedi Maliahs is a separate charge managed by a Special Forest Officer under the Agent to the Governor, Ganjam. The forest blocks comprise 177 square miles and have been notified under section 26 of the Madras Forest Act.

Cost of administration—

	Rs.
Special Forest Officer	8,809
Establishment	18,841
Miscellaneous including contingencies	2,797
Total ...	30,447

Cost under other important heads—

Timber operations	886
Firewood	506
Fire protection	582
Permit establishment	2,080
Miscellaneous	528
Total ...	4,582

Income from main sources—By Forest department—

	Rs.
Timber	7,930
Firewood	8,484
Bamboos	4,565
Minor forest produce	29,161
Grazing	1,401
Miscellaneous	1,411
	52,952
Deduct—Refunds	27
Total Revenue ...	52,925

VIZAGAPATAM.

Description.—The Eastern Ghats occupy a great part of the district and are malarious. These are the Agency tracts. In the plateau of Palakonda Range there is a little Sal and in all 11 patches of 680 acres are covered with a fair growth of this species. This is the southern limit of Sal.

The plains portion of the district has numerous isolated hills and such of them as are reserved forests are well wooded and are divided into about sixteen felling series for supply of small timber and fuel.

The Golgonda (Gudem) Agency—area about 800 square miles—is nearly all forest, but much of it is as yet almost unknown country. But it is now being rapidly opened up and a series of pukka-metalled and bridged roads (about 54 miles in all) are under construction by a special branch of the Public Works Department. At Chintapalli which has been fixed as the headquarters of subordinate officers of all departments (Forest, Public Works Department, Revenue, Medical and Police) pukka buildings are under construction or will be constructed in the near future. In this tract the District Forest Officer is styled Special Forest Officer and works under the Agent to the Governor.

None of the forests either in the plains or Agency has contour maps by the Survey of India and forest work has been greatly hampered in consequence.

Area—

	Sq. mls.
Reserve forest	307
Reserved lands	2

How the forest district is split up into subordinate administrative charges.—The whole forest division except Golgonda Agency Range is split up into two Ranges consisting of 24 beats under eight sections.

N.B.—The following figures include figures for Golgonda Agency portion also.

Cost of administration—

	Rs.
District Forest Officer	10,919
Forest Rangers	9,990
Subordinate staff	13,652
Clerical and menial staff	6,586
Miscellaneous including contingencies	2,900
Total ...	44,047

Cost under other important heads—

Timber operations	3,625
Roads—New works	*770
Do. Repairs	629
Regeneration	...
Protection from fire	328
Buildings—New works	1,426
Do. Repairs	1,164
Other miscellaneous items including pay of watchers	4,256
Demarcation	911
Total ...	13,115

Income from main sources—By Forest department—

Timber	11,166
Firewood	5,733
Bamboos	18,724
Grazing	3,107
Other minor produce	8,005
Miscellaneous revenue	6,783
	53,518
Deduct—Refunds	1,657
Total ...	51,861

By Revenue department—

Timber	3,244
Firewood	2,288
Other minor produce	2,208
Total ...	7,740
Grand Total ...	59,601

*Excludes Rs. 1,400 contributed by the Revenue department for Palakonda road works.

The chief work done in the Forest district—Plains.—Supply of small timber, fuel and bamboos to the population near the forests. Some fair quality small timber mostly Sal is worked from Palakonda Range, where a new road system has been completed.

Golgonda Agency.

A start has been made to work mature selected portions of the accessible Agency forests for big timber, about 4,000 cubic feet having been transported during the year for sale to Narasapatam, the nearest town in the plains. This and an attempt to sow teak in 5 acres of heavily improvement felled area, are the only purely forest works attempted by the small staff. The staff is however very busy at present with the work of selecting and demarcating new blocks for reservation in the eastern portion of this Agency and in restricting within authorized limits the shifting cultivation (podu) by hillmen.

Upper Godavari.

Description.—The forest division lies entirely in the Koya Agency on the left bank of the Godavari river. It contains many broken hill ranges. The elevation is from 200 feet to 4,466 feet. The tract is highly malarious and occasional cases of black-water fever also occur. The forest is deciduous, and contains teak, *Terminalias, Pterocarpus marsupium, Hardwickia binata, Kydia* and a few rosewood and satinwood. Bamboos specially *Dendrocalamus* are very abundant in the south and east parts of the division in what are called Rekapalli hills and negotiations are in progress to lease out these forests to the Paper Factory at Rajahmundry which has started working on a small scale since January 1930. The Godavari river (with its tributary, the Sabari) is the main line of communication with the outside world. The District Forest Officer's headquarters in Kunavaram but he is permitted to spend six weeks in the year at Rajahmundry.

Area.—Reserved forests, 830 square miles. In addition about 370 square miles of unreserved lands are under the control of the Forest department and which are also worked systematically for timber.

How the forest district is split up into subordinate administrative charges.—The whole forest division is divided into six Ranges consisting of 53 beats under fifteen sections.

Cost of administration—

	Rs.
District Forest Officer and Extra Assistant Conservator	20,061
Forest Rangers	18,349
Subordinate staff	24,861
Clerical and menial staff	13,551
Miscellaneous including contingencies	2,809
Total ...	79,631

Cost under other important heads—

	Rs.
Timber operations	12,577
Firewood	154
Demarcation	325
Feed and keep of livestock	875
Regeneration	1,868
Protection from fire	4,499
Roads—Original works	1,630
Do. Repairs	904
Buildings—Original works	3,324
Do. Repairs	2,675
Other miscellaneous items including reserve watchers	7,985
Purchase of livestock (one elephant)	4,086
Total ...	40,912

Income from main sources—By Forest department—

Timber	1,08,693
Firewood	1,219
Bamboos	27,862
Grazing	7,950
Other minor produce	3,763
Miscellaneous revenue	6,498
	1,55,985
Deduct—Refunds	1,024
Total ...	1,54,961

By Revenue department.—Nil.

The chief works done in the district are—

(1) Timber exploitation (coupes are worked departmentally in both reserves and unreserves).

(2) Regeneration mainly teak—

(*a*) by modified Taungya,

(*b*) naturally.

(3) *Reservation of additional timber bearing areas (about 68 square miles).*—A special duty Extra Assistant Conservator was engaged throughout the year selecting and demarcating new blocks.

(4) *Fire-protection.*—The Koyas and Reddis who alone are employed on this work were paid rewards to the extent of Rs. 2,307 for successful protection of forests in addition to wages for line-clearing.

Bamboo coupes which are leased out produce a good revenue.

LOWER GODAVARI.

Description.—Divisible into three zones—(*a*) the mangrove swamps of the Godavari delta, (*b*) the central laterite belt containing mixed deciduous forests, (*c*) the Rampa Agency and the Papi Hills (2,000 feet) containing timber and bamboos. Rajahmundry is the biggest market for timber and bamboos on the East Coast. Recently a paper-making factory has begun working at Rajahmundry and which, it is expected, may ultimately require about 10,000 tons of bamboos annually. Negotiations are also proceeding for leasing out large areas in this division (including Rampa) and in Upper Godavari, to the Rajahmundry Match Factory for removal of soft woods.

Area.—Reserved forests, 568 square miles.

How the forest district is split up into subordinate administrative charges.—The whole forest division is divided into five Ranges consisting of 54 beats under 19 sections.

Cost of administration—

	RS.
District Forest Officer and Extra Assistant Conservator, Rampa	22,130
Forest Rangers	16,600
Subordinate staff	25,724
Clerical and menial staff	9,394
Miscellaneous including contingencies	5,290
Total ...	79,138

Cost under other important heads—

Roads—Original works	3,502
Do. Repairs	1,201
Surveys (by Government of India Survey department)	11,397
Feed and keep of livestock	851
Regeneration	3,040
Protection from fire	2,199
Buildings—New works	2,299
Do. Repairs	3,098
Other miscellaneous items including pay of watchers	19,257
Demarcation	2,033
Total ...	48,877

Income from main sources—By Forest department—

	Rs.
Timber	24,018
Forewood	60,015
Bamboos	1,00,837
Grazing	17,860
Other minor produce	42,531
Miscellaneous revenue	20,767
	2,66,028
Deduct—Refunds	4,178
Total ...	2,61,850

By Revenue department—

Timber	10,481
Firewood	1,668
Other minor produce	35,924
Total ...	48,073

The chief work done in the Forest district.—Supply through coupe contractors of about 10,000 tons of mangrove fuel to Cocanada town and port and of small timber, fuel and bamboos to Rajahmundry, Peddapur, Samalkot and other places, from a number of reserved forest in the plains and detached hills of those taluks. Rampa produces much timber and bamboos and minor forest products which are collected by hillmen and removed by purchasers from whom seigniorage is collected by the Forest department at fixed tanas or shandies. Rampa bamboos find their way to all parts of the delta, to Kistna and even to Guntur.

Chief article among the minor products of the Rampa Agency is tamarind. This is exported to Kistna and Guntur districts also.

There are two teak felling series in Polavaram Range which supply Ellore and other markets including Rajahmundry.

Introduction of sandal to a small extent and teak in selected plots in Tirumalayapalem, Mallavaram and Sudikonda reserves and in Ammayagoppu Valley.

Guntur.

Description.—The division includes the whole of the Guntur and Kistna revenue districts. There is a belt of mangrove swamp forests along the coast partly in the Guntur and partly in the Kistna districts. It supplies good quality fuel which is taken to towns like Bezwada, Tenali and Masulipatam and also to big villages in the delta taluks of Tenali, Repalli and Divi. Part of this fuel is utilized by factories (mainly brick factories).

The grazing grounds to the immediate west of the delta were handed over to panchayat management.

The reserved forests in the Guntur district still further west and north-west are mostly on low hills and are worked for the supply of a little small timber, but mainly fuel and grazing to the local population. These forests extending for miles along the Kistna river are of great climatic importance.

The Kondapalli reserve (in Kistna revenue district) is also worked for small timber, fuel and bamboos, and supplies the requirements of Bezwada.

Area.—Reserved forests, 904 square miles. Six hundred and twelve square miles under Forest department and 292 square miles under panchayat management. Reserved land 1 square mile.

How the forest division is split up into subordinate administrative charges.—The division is divided into four Ranges consisting of 55 beats with 16 foresters for sections, etc.

Cost of administration—

	Rs.
District Forest Officer	12,838
Forest Rangers	8,414
Subordinate staff	20,960
Clerical and menial staff	10,987
Miscellaneous including contingencies	3,927
Total ...	57,126

Cost under important heads—

Timber operations	...
Roads—Original works	101
Do. Repairs	1,877
Regeneration	164
Buildings—Original works	1,056
Do. Repairs	711
Other miscellaneous items including pay of watchers	13,600
Total ...	17,509

Income from main sources—By Forest department—

Timber	780
Firewood	37,345
Bamboos	9,445
Grazing	51,751
Other minor produce	6,765
Miscellaneous revenue	18,146
	1,24,232
Deduct—Refunds	1,456
Total ...	1,22,776

	Rs.
By Revenue department—	
Timber	1,852
Firewood	12,265
Other minor produce	19,243
Total ...	33,360
Grand Total ...	1,56,136

The chief work done in the forest district.—A large number of fuel coupes are worked through contractors. But a good deal of the activity of the staff has to be devoted to the protection of the forests from illicit fellings of small timber, fuel and Yepi leaves for fodder and also in preventing illicit grazing. On account of extreme pressure for grazing, a large area of the reserves has to be closed to sheep grazing in order to give a chance to cattle. As in the upland taluks there are vast herds of sheep maintained by professional breeders (Gollas), it is a matter of great difficulty to prevent illicit grazing of sheep in areas closed to this animal.

Nellore.

Description.—This forest division lies in the revenue districts of Nellore and Chingleput. It comprises—

(1) *Sriharikota Island.*—The reserved forest is 25,317 acres of pure sand, with some alluvium below. It is situated between the Pulicat lake and the sea. It is densely wooded over the greater portion with dry evergreen species, e.g., Maba, *Memecylon*, soapnuts, *Nux-vomica*, etc., but these are not of great size. The Forest department has restarted casuarina planting by the seashore and 50 acres were planted in 1929. There are many private plantations of casuarina in the Island. Extraction of fuel is by tramways (supplied to contractors by the department) to the Buckingham Canal for the Madras market, as it is not possible to use carts in this sandy tract. On account of facilities for transport by tram lines and canal and as Madras is only about 45 miles away by canal, these forests, though they do not contain big sized trees, are yet very remunerative and have been systematically worked for years. In fact it is one of the oldest regularly worked forests in the Presidency and was worked on leases even in time of the East India Company.

(2) Sathiavedu Range (Chingleput district) consists of seven blocks of forest containing scrub jungle (dry evergreen). A part of the fuel yield is exported to Madras. The area is 51,012 acres.

(3) The hill ranges known as the Veligondas along the western boundary of Nellore where it adjoins Kurnool and Cuddapah. Being distant from markets, these forests are not under felling at present though they contain some valuable species like Red sanders and *Shorea thumbaggia*. They require rest and conservancy and being of climatic importance as several streams rising in the Veligondas drain into the Pennair which supplies the irrigation canals of the delta.

Area.—Reserved forests, 820 square miles.

How the forest district is split up into subordinate administrative charges.—The whole division is divided into five Ranges consisting of 33 beats under twelve sections.

Cost of administration—

	Rs.
District Forest Officer	12,870
Establishments (including Rangers, subordinate and clerical staff)	42,743
Miscellaneous including contingencies	3,677
Total ...	59,290

Cost under other important heads—

Minor forest produce	6,072
Roads—Original works	1,799
Do. Repairs	1,298
Feed and keep of livestock	29
Regeneration	119
Protection from fire	408
Buildings—Original works	1,800
Do. Repairs	2,620
Other miscellaneous items including pay of watchers and cost of tram materials	26,190
Demarcation	97
Sowing and planting	858
Total ...	41,290

Income from main sources—By Forest Department—

Timber	6
Firewood	82,646
Grazing	23,356
Other minor produce	21,941
Miscellaneous revenue	14,266
	1,42,215
Deduct—Refunds	432
Total ...	1,41,783

By Revenue department—

Timber	2,655
Firewood	2,271
Other minor produce	7,144
Total ...	12,070
Grand Total ...	1,53,853

The chief work in the district.—The chief activity is in Sriharikota Island where an area of 1,400 acres approximately is clear-felled annually for fuel supplies to Madras town. A large quantity of minor forest produce (mainly *Nux vomica*, soapnuts, tamarind, and canes) is also collected in this island departmentally through the agency of the aboriginal tribe of Yanadis the department having undertaken to look after the welfare of this jungle people who besides being paid daily wages for produce collected, are also given rewards and are encouraged to save by deposting portion of these rewards in Savings Bank Pass Book under the control of the Ranger and District Forest Officer.

In the Veligondas protection from man and conservancy are foremost. In the reserves in Chingleput district there are 19 fuel felling series for local consumption and for Madras. Sandalwood has been introduced on the Udayagiri and Kambakkam Hills.

F. R. MADAN,
Acting Conservator of Forests, I Circle.

14*th September* 1930.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1930.

SECOND CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

1. *Reserved forests.*—The total area at the beginning of the year was 5,838 square miles and it remained practically unchanged. There were some small additions and exclusions during the year. The chief of them were—

(i) Nine hundred and eighty-five acres were disreserved, thus: 859 acres in *Anantapur* division for purposes of cultivation, 101 acres in *Kurnool South* division, an area occupied by a tank; and 25 acres in *Cuddapah North* division, namely, two topes of no value as forest, the land being suitable for cultivation;

(ii) in *Anantapur* division, the area hitherto adopted for Kosinipalle reserve, was based on the area noted on the map. It was found to exceed the actual area by 2,740 acres and the figures have been corrected; and

(iii) similarly, in the same division, an area of 3,658 acres was added to the areas of reserves due to adopting resettlement figures.

The figure added is the aggregate of alterations in reserve area figures in the Bellary district: but reserves in the Hospet and Kudligi taluks have still to be dealt with; the matter being under correspondence.

2. *Reserved lands.*—Nil.

2. FOREST SETTLEMENT.

3. Nil.

3. DEMARCATION.

4. No new demarcation was undertaken during the year. The work of reclearing of boundaries and of repairing cairns was, as usual, carried out by subordinates free of cost over a distance of

2,724 miles. Where the work was beyond the capacity of the staff, small sums (amounting in all to Rs. 556) were sanctioned.

Kurnool East.—Fifty miles were recleared at a cost of Rs. 210.

Kurnool West.—A sum of Rs. 310 was spent on the maintenance of 696 miles of boundary lines. Of this Rs. 200 was spent on clearing the common boundary line between the West and the East divisions.

The frontier boundary between the Banganapalle State and the British Territory was maintained at a cost of Rs. 11-8-0 from the ' Political Funds '.

Cuddapah North.—The district boundary line between Cuddapah and Kurnool districts in the Nallamalais of Porumamilla range was recleared at a cost of Rs. 24 to a distance of 4 miles.

4. Forest Surveys.

(*a*) *By the Survey of India Party.*

5. There was no survey of reserves under departmental control, but the survey of some reserves now under panchayat management in the western portions of Harpanahalli and Hadagalli taluks in Bellary revenue district was undertaken on the 1-inch scale during the year.

(*b*) *By the Madras Survey Party.*

Nil.

(*c*) *Local surveys.*

Surveys of coupes, rectification of boundaries, preparation of coupe maps, etc., were done as usual departmentally.

The prescribed reference maps were maintained in all divisions except *Anantapur*, where, in the absence of a draughtsman, they could not be posted up to date.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of working plans.

(*a*) Preparation.

6. Two new working plans—one for *Anantapur* and another for *Kurnool East*—were sanctioned during the year by the Chief Conservator in his Proceedings No. 42, Press, dated 28th January 1930, and No. 230, Press, dated 4th July 1929, respectively.

7. Out of 4,390 square miles of reserves under departmental control in the whole Circle, an area of 2,682 square miles is covered by sanctioned working plans; namely, the whole *Anantapur* division; *Kurnool East* division with an exception of 13 square miles recently transferred from panchayats; part of *Kurnool South* division (351); whole of *Cuddapah North* and a portion of *Cuddapah South* (113). The remaining area, 1,708 square miles relates to *Kurnool East*, *Kurnool South*, *Kurnool West*, and *Cuddapah South*.

Kurnool East.—An area of 13 square miles was transferred from panchayat management in November 1929, i.e., after the working plan was sanctioned for the whole division in July 1929. Steps will be taken to include this under working plan.

Kurnool South.—A single working plan for Gundlakamma and Giddalore ranges, covering 283 square miles was prepared and submitted for sanction during the year. It has since been sanctioned after the close of the year.

Kurnool West.—For the whole of this division working plans have been made. For the Yerramalais portion (300 square miles) a plan is about to be submitted to the Chief Conservator of Forests. For the remainder, Nallamalais (554 square miles), the draft is understood to be complete, and pending with the Conservator of Forests, III (Working Plans) Circle.

Cuddapah South.—A consolidated working plan for the whole of this division (671 square miles) has been prepared. All final points have been settled with the District Forest Officer and the plan will be submitted soon for sanction.

(*b*) Control.

8. Control returns in respect of all the sanctioned plans are reviewed first in the territorial and then in the Working Plans Circle office. For *Kurnool West* Yerramalais control returns from 1928-29 are being compiled in anticipation of the plan being sanctioned—vide Chief Conservator's Proceedings No. 54, Routine, dated 31st January 1930. The prescriptions of the working plan for the Nallamalais of *Kurnool West* are also being followed with effect from the year under report, pending the formal sanction of the plan. As regards *Cuddapah South* similarly returns have been called for for the year under report. The prescriptions of the working plans were adhered to generally. In *Cuddapah North*, some new series not actually prescribed were formed under instructions of my predecessor, in his inspection notes on the forests of the division. Necessary amendment to the working plan is said to be under preparation for sanction by the Chief Conservator.

2. Communications and Buildings.

9. Only one new work costing over Rs. 5,000 was sanctioned during the year. That was construction of a new Ghaut road, (Sudem-Adutla road—distance 9 miles) in Gundlabrahmeswaram range of *Kurnool West* division. The road will be built at a total cost of Rs. 10,000.

(*a*) *Roads and Bridges.*

10. *New works.*—The total expenditure on ' New works ' was Rs. 3,517 against Rs. 553 in the previous year. The increase was chiefly in *Kurnol West* division, construction of Sudem-Adutla Ghaut road referred to in paragraph 9 supra having been taken up. This road was considered essential for the purpose of opening up of the forests on the plateau at Gundlabrahmeswaram. It is expected to tend towards colonizing the Gundlabrahmeswaram plateau on which at present even the forest staff do not live permanently. About 9 miles of road are projected; and as the undertaking was sanctioned late in the year, December 1929, only 4 miles of the road were finished during the year (cost Rs. 2,881). In the same division an amount of Rs. 610 was spent in Bairluty range on the widening of the Mantralakanama Ghaut road, connecting Atmakur with Markapur.

In *Cuddapah North* division an alignment was made for a bridle-path from Jothi in Nallamalais of Porumamilla range to Chinna-letipattibhavi in Nallamalais of Vonipenta range, a distance of 5½ miles, at a cost of Rs. 27. This was in accordance with the instructions issued by my predecessor in his inspection notes on forests of this division.

At the end of the year there were 271 roads and bridle-paths including culverts aggregating a distance of 885 miles, built at a capital cost of Rs. 2,15,576.

11. *Maintenance.*—Expenditure on the repair of 170 miles of roads, bridle-paths and inspection paths was incurred, Rs. 4,770, during the year against 233 miles at a cost of Rs. 7,925 in the previous year. The decrease in expenditure is attributed generally to closer scrutiny of estimates and to confining repairs to where they were really necessary.

12. All roads in the Circle are certified to be in a fairly satisfactory condition except those of *Cuddapah South.* About these my predecessor has left the following note:—' The forest roads in Seshachalam Hills are in a terribly bad condition and have to be repaired in 1930-31 about which the District Forest Officer's attention has been drawn.'

(*b*) *Buildings.*

13. The expenditure on new works and improvements was Rs. 15,006 against Rs. 3,774 in the previous year. Maintenance of the existing buildings (including the pay of watchers) during the year was Rs. 8,239 against Rs. 12,034 in the previous year.

14. The buildings newly constructed or acquired or improved during the year under report were—

Anantapur.

A new building with site was acquired for the range office at Madanapalle at a cost of Rs. 4,041; and improvements to the building were effected at a cost of Rs. 381 during the year.

Kurnool East.

	Rs.
Completion of the range clerk's quarters at Turimella	740
Improvements to the depot building at Velagalapaya	20
Combined range office and quarters at Ganjuvaripalli (part: incomplete)	3,116
Range clerk's quarters at Ganjuvaripalle (part: incomplete)	663
Subordinates' quarters at Ganjuvaripalle (part: incomplete)	725
	5,264

Kurnool South.

Construction of the subordinates' quarters at Isukagundam	1,869

Kurnool West.

Conversion of the old Deputy Ranger's quarters and a shop at Pasurutla into an inspection shed for the Range Officer	45
Improvements to garage attached to District Forest Officer's quarters at Kurnool	78
Improvements to the inspection shed at Abrajakunta by addition of a kitchen and latrine ...	60
Converting range office building at Velgode into a rest-house	144
	327

Cuddapah North.

	Rs.
Completion of subordinates' quarters at Balayapalle	847
Improvement to motor garage attached to District Forest Officer's quarters	58
Construction of dry earth latrine to District Forest Officer's quarters	249
Improvement to Kondur rest-house	26
Do. to Byanapalle rest-house	13
Do. to Rollabodu rest-house	38
Do. to compound wall of the Badvel range quarters	24
	1,255

Cuddapah South.

	Rs.
Part-construction of Range Officer's quarters at Rajampet	1,900

15. There were 382 buildings valued at Rs. 5,08,083 on the books at the end of the year and their cost of maintenance (Rs. 4,730) was 1 per cent of the capital cost.

The District Forest Officers have certified that all the buildings have been kept in a fairly satisfactory state of repairs during the year.

(*c*) *Miscellaneous.*

16. The expenditure on new works and on repairs were Rs. 2,104 and Rs. 288, respectively, as against Rs. 1,431, and Rs. 567 in the previous year.

17. The chief items of new works were—

Kurnool East.

	Rs.
Completing the trial well pit at Tummalabylu ...	108
Deepening well at Chinnamantrala	62
Constructing a parapet wall and improving the springs at Arichelama into a well	103
Deepening the well at Chilkacherla	9
	282

Kurnool South.

	Rs.
Deepening the trial pit at Sandrapodu and converting it into a pukka well	450
Completion of the construction of loading platform at Diguvametta	315
	765

Kurnool West.

Erecting a platform round the well in Sivapuram Range Office compound	73

Cuddapah North.

Completion of the installation of a tube well with Myers pump at Chinnaletipattibhavi	510
Deepening the well in Porumamilla Range quarters	90
Improvements to Rollapenta well	80
Trial boring at Kondagorlapenta, for a tube-well.	302
	982

18. There were 139 wells, representing capital expenditure of Rs. 32,036, at the close of the year. Twenty-four wells were repaired at a cost of Rs. 458 during the year.

3. Protection of Forests.

(a) *General protection.*

19. The following statement shows the offences registered during the year as compared with the previous year:—

Offences relating to reserves dealt with by Forest Officers.

	1929-30.	1928-29.
	No.	No.
1. Injury to forests by fire	*128	201
2. Unauthorized fellings	†1,908	1,647
3. Unauthorized grazing	*667	709
4. Other offences	†256	168
Total ...	2,959	2,725

* Decrease. † Increase.

The figures show an increase in items 2 and 4 and decrease in other items. The decrease under item 3 is small. Under injury to forests by fire the decrease originates mainly from *Anantapur* and *Kurnool West* divisions: early-burning operations were conducted on an elaborate scale in accordance with the prescriptions of the new working plan sanctioned for *Anantapur* and under preparation for *Kurnool West* division. Also there were providential heavy rains in early May.

The increase under unauthorized fellings is notable in *Kurnool South* and *West* and is reported to have a connexion with the formation of special patrols and the performance of surprise inspections by the Range Officers.

The increase of detections under other offences was appreciable in *Kurnool South* division and is explained as due to vigilance.

20. *Offences relating to unreserves dealt with by Revenue Officials.*—These exclude offences relating to reserves under panchayat management.

	1929-30. No.	1928-29. No.
Injury to forests by fire	6	3
Unauthorized fellings	860	876
Unauthorized grazing	Nil	2
Other offences	42	78
Total ...	908	959

The decrease is mainly in *Kurnool South* division. It is small, on the whole, and requires no remarks.

21. *Cases relating to reserves brought to trial.*—

Year.	No.	Conviction.	Acquittals.	Percentage of acquittals.
1928–29	683	376	234	34·3
1929–30	862	282	466	54·0

The increase in the number of acquittals was mainly in *Anantapur* division and is due to the fact that a larger number of cases had to be acquitted on account of payment of compounding fees in the court.

There were 450 such cases during the year against 234 of the previous year.

22. *Cases relating to unreserves brought to trial.*—

Year.	No.	Conviction.	Acquittals.	Percentage of acquittals.
1928–29	113	77	22	18·1
1929–30	175	42	117	66·8

The increase in the number of acquittals is due to the payment of compounding fees in the court in respect of 102 cases out of 117 cases acquitted.

23. The percentage of offences personally enquired into by the District Forest Officers and Range Officers is given below:—

Divisions.	District Forest Officer's percentage.	Range Officer's percentage.
Anantapur	0·3	8·5
Kurnool East	1·1	16·8
Kurnool South	Nil	5·0
Kurnool West	Nil	Nil
Cuddapah North	1·2	11·0
Cuddapah South	0·7	16·7

24. The amount of compounding fees realized in 2,935 cases compounded during the year was Rs. 46,303 against Rs. 42,815 in 2,776 cases of the previous year. This works out to an average of Rs. 15-12-1 per case against Rs. 15-1-11 per case in the previous year. The instructions issued in Government Order No. 990, Revenue, dated 13th June 1910, were generally followed in fixing the compounding fees.

25. *Patrol system.*—' Surprise ' patrols by the Range Officers and the subordinates of neighbouring beats were formed as per Chief Conservator's instructions issued in the last year's review of the Administration Report with the results noted below:—

	Number of cases detected.
Anantapur	3
Kurnool East	15
Kurnool South	102
Kurnool West	50
Cuddapah North	33
Cuddapah South	28

26. *Rewards.*—Rewards amounting to Rs. 30 were granted to the subordinates for the detection of forest offences, the amount of the previous year being Rs. 178.

(*b*) *Protection from fire.*

27. *Special protection.*—The area attempted to be specially protected by a system of fire-lines all round the felled improvement timber and fuel coupes during the year was 96 square miles, against 6 square miles in the previous year; and the cost of protection was Rs. 229 against Rs. 35 in the previous year. The increase was in *Anantapur* and *Cuddapah South* divisions. An area of 53,121 acres was successfully fire-protected during the year, against 3,428 acres in the previous year, the percentage of failure being 13·8 against 11·8.

28. *Early-burning.*—Early-burning operations were carried out in all the divisions. The total area dealt with during the year was 442 square miles against 788 square miles in the previous year.

The average cost of the operation was Rs. 7-9-11 per square mile against Rs. 4-2-0 of the previous year. The decrease in the area early burnt was due to the transfers of large areas in *Anantapur* and *Cuddapah South* divisions to special protection; and also was partly due to grass remaining green until far into the early hot weather, on account of late heavy showers in the Cuddapah divisions in November 1929. The areas were stock-mapped before the commencement of the operation and each forest subordinate had to carry out early burning in a block assigned to him. The total area burnt by late incendiary fires in the early burnt portions was 6 square miles during the year or under 1 per cent of the area dealt with.

29. *General protection.*—The area under general protection was 3,844 square miles against 3,681 square miles in the previous year. An area of 3,606 square miles was successfully protected during the year against 3,557 square miles in the previous year, the percentage of failure being 6·2 against 3·7. The increase was mainly in *Kurnool South* and two Cuddapahs. The District Forest Officer, Kurnool South, attributes the increase partly to an area being left unburnt, by the order of the Collector, owing to the shortage of grass, and partly due to the incendiarism by the villagers passing through forests. Grass-cutters fire the forest to facilitate access to the desirable grass areas: and they fire it to promote appearance of fresh grass. Closure of grass-cutting would arouse hostility and induce incendiarism. It is a vicious circle. The question of fire-protection of two Cuddapahs has not yet been solved, and presumably this is not the place to discuss it. During the year my predecessor drew up a precis of all that had been recorded by various officers from time to time, since the days of the organization of the Forest department in Madras, regarding the difficulties of fire-protection of the Cuddapah forests, the origin and cause of fires therein, the methods proposed and applied for combating the evil and what might be done hereafter to minimize the fire damage to Red sanders. A note on this subject was submitted by my predecessor to the Chief Conservator and it is now pending orders.

(*c*) *Protection against cattle.*

30. The total area closed to grazing was 166 square miles out of 4,390 square miles of reserved forests under departmental control, against 245 square miles in the previous year. Two square miles of reserved forest were closed to grazing for part of the year in *Anantapur* division, against 22 square miles of the same division in the previous year. The area opened to all animals except goats was 4,207 square miles against 4,119 square miles of the previous year. An area of 15 square miles was opened to grazing for part

of the year in *Anantapur* and *Kurnool East* divisions against 22 square miles of the previous year. The difference in the areas opened and closed to grazing as compared with the previous year was mainly in *Cuddapah North* division and it was due to the introduction of the prescriptions of the new working plan regarding grazing.

31. The number of animals licensed to graze on payment was 442,276 against 433,055 in the previous year. The increase was in three *Kurnools* and *Cuddapah South*. It is explained as due to the advent of large number of foreign cattle, a circumstance that varies with weather conditions.

32. The number of cattle impounded was 28,484 against 23,694 in the previous year. The increase was mainly in *Kurnool South* division and this has been reflected in the increased collection of grazing fees.

33. The following statement compares the revenue and incidence of grazing during the year under report with those of the previous year :—

District.	Grazing revenue.			Incidence acres per cow unit.	
	1928-29.	1929-30.	Difference.	1928-29.	1929-30.
	RS.	RS.	RS.	ACS.	ACS.
Anantapur	32,665	32,291	— 371	3·20	4·44
Kurnool East	31,513	32,044	+ 531	12·75	10·20
Do. South	16,865	23,268	+ 6,403	8·81	10·5
Do. West	36,882	37,340	+ 458	8·10	7·1
Cuddapah North	30,742	27,239	— 3,503	7·50	8·8
Do. South	19,034	19,712	+ 678	10·00	11·47
Total ..	1,67,701	1,71,897	+ 4,196	..	..

The increase was mainly in *Kurnool South* division and it is attributed partly to the vigilance of the protective staff and the existence of patrol parties, the organization of surprise inspections and partly to the advent of a larger number of foreign cattle during the year.

(*d*) *Protection against injuries from natural causes.*

34. No special operations were necessary under this head. In *Anantapur* division eradication of Lantana in portions of Horsley-konda reserve was done free of cost by subordinates.

In *Kurnool South* division it is reported that climbers were cut by the subordinates in worked coupes.

In *Cuddapah South* division thorny creepers were cut by subordinates as far as practicable. It is reported that Strobilanthes has appeared in felled coupes, retarding the regeneration. Action is being taken to check the Strobilanthes.

CHAPTER III.—SYLVICULTURE.

SECTION I.—AFFORESTATION AND REGENERATION OF FORESTS.

(i) *General progress of areas under regeneration.*

35. The regeneration operations in the Second Circle include the following principal items :—

(*a*) Working of simple coppice and coppice with standards coupes : here reproduction is principally by coppice shoots. This is the main activity in the Circle though the operation is carried out by contractors who have the coupes. Other work of a sylvicultural nature is on a small scale at present. Progress of coppice regeneration continues normal and satisfactory. It is unnecessary to comment on the results in individual division.

(*b*) Measures for improvement of the stocking of good species, in the better-quality coupes, designated variously (' Timber ' coupes is the term commonly employed) have been introduced by Mr. K. R. Venkataramana Ayyar. The measures include burning of debris in heaps, and sowings of seeds, of tree species preferably, in the ash : also cutting back of advance growth of good species, in combination with early-burning, in order to expedite the growth of this natural regeneration. These works have been begun throughout the Circle : commencement having been made in some divisions in 1928-29, and in other divisions in 1929-30. The operations not yet having advanced far in 1929-30, it is too soon to make important comments; but we have great hopes.

(*c*) Generally throughout the divisions a campaign of forming sandalwood regeneration plots has been developed. The theory is that by starting the sandal in a few favoured spots where satisfactory results may be expected from artificial regeneration methods, centres will be formed from which sandal will be spread by natural agencies throughout the adjoining reserves. Here again, some divisions have several years' results to show : in others the work is newer. There can be no doubt that valuable results will gradually be obtained : but reports from divisions are hard to amalgamate into general pronouncement. In some divisions local droughts have resulted in failures. It can be said that, where weather conditions have been tolerable, fair to moderate results have been obtained; and that everywhere efforts have been made, and the staff (which does merely all the work itself, free of cost) is learning how to manage the work.

36. In this report the results of the above works cannot be *condensed* satisfactorily; for the divisions are at different stages in regard to sanctioned working plans. All the circle forests (practically speaking) are being managed under working plans,

which all run on somewhat similar lines; but for some divisions the plans have not yet been formally sanctioned. Hence the difficulty in condensing the district reports conveniently.

37. In the divisions of the Circle there are regular plantations, formed in the past, on a small scale; but at the present day, *regular plantations* are not in vogue in the Circle. It may be observed that the small Kodur Red Sanders plantations, about 40 acres, started in the ' sixties,' cost approximately Rs. 1,900, and has since brought us about Rs. 19,000 in revenue: is a property of ever-increasing value, for sandalwood is spreading in it like a weed. Mr. Wood's Kurnool West plantations, made in order to provide regular work for Chenchus (and not therefore regarded at the outset as a ' commercial ' venture) cost some Rs. 3,00,000; have brought in about Rs. 30,000 in revenue. The plantations are reported as thriving.

38. The paragraphs that follow present, as best I can with an incomplete personal knowledge of the Circle, the reports of the District Forest Officers:—

Kurnool East.—In the timber improvement coupes seedlings below 6 inches in girth were cut back before early burning the coupe. Results by repetition of this process will be apparent only after some years: so far there is reason for satisfaction.

Kurnool South.—The results of the sandalwood sowings done along stream beds by the subordinates free of cost are reported to have been unsuccessful as the other factors except ' Soil ' for the growth of sandal are reported to have been unfavourable.

Kurnool West.—The natural regeneration of the more important timber species such as *Tectona grandis, Pterocarpus marsupium, Terminalia tomentosa* in the Nallamalais and *Hardwickia binata* in the Yerramalais was good. Regeneration from coppice has generally been satisfactory..

Cuddapah North.—Due chiefly to want of timely rains, the year was a particularly poor one for seed production in the case of all the important species. Therefore seeds of *Anogeissus Albizzia lebbek, Dolichandrone crispa*, etc., were collected as these seeded well. Regeneration from coppice was generally satisfactory.

With a view to minimise the fire danger to natural regeneration cutting back of seedlings of the more important species was done in all coupes of 1929-30 at a cost of As. 1-5 per acre on the average over 6,050 acres in some cases before the early burning and in some others after the early-burning operations. The effect of this is reported to have been satisfactory judged by the vigorous shoots that the seedlings so cut back have put forth.

Cuddapah South.—The year was generally a bad one for seeds.

(ii) *Establishment of reproduction under working plans or schemes.*

(*a*) Mainly natural.

39. *Anantapur.*—Sandal is reported to be spreading well in Madanapalle and Bukkapatnam ranges.

Kurnool East.—Natural regeneration of Yepi was good and that of Yegi and Chiruman fair but the seedlings withered with the approach of summer.

Kurnool South.—Natural regeneration in worked coupes was satisfactory.

Kurnool West, Cuddapah North and South.—In all areas worked under simple coppice or coppice with standards or improvement fellings the regeneration from coppice continued to be satisfactory.

(*b*) Mainly artificial.

40. *Anantapur.*—Dibbling of sandal seeds in propagation centres of one acre in each beat was done in 56 beats during the year free of cost by subordinates. All the plots of 1928-29 were again re-dibbled during 1929–30 to replace casualties. The seedlings are reported to be mostly healthy. A three years' trial is provided in the working plan before any plot can be decided to have been well established or considered a failure. So far progress is encouraging.

Kurnool East.—Sandal seeds were sown along streams-banks, and in the midst of bushes. Seedlings were also raised in bamboo baskets for transplantation in selected plots under suitable weather conditions. All the subordinates in the division were ordered to open 1-acre sandal propagation plots at the rate of one for each subordinate every year. On the whole the operations have not been successful, as the seedlings that resulted died during the period of drought. At the end of the year under report there were only 39 plots (39 acres) where seedlings were found thriving out of 144 plots ordered to be maintained, one for each of the 48 subordinates at the rate of one plot per year from 1928–29. A sum of Rs. 183 was spent for regeneration operations over an area of 298 acres during the year. Seeds of valuable timber species, such as, Chiruman, Yegi, Jittegi and Nallamaddi were sown in burnt patches numbering in all to 4,774 in six coupes. The result of the sowings is reported to be not satisfactory: the seedlings dried up in the drought that followed the sowings.

Kurnool South.—Seeds of important timber species were broadcasted, on burnt debris-patches in all the worked timber coupes during the year. The District Forest Officer has not reported the results.

Kurnool West.—An amount of Rs. 910 was spent in clearing bamboos, burning the same and sowing seeds of Yegi, etc., in the following coupes:—

	Rs.
Pasurtla IV, Bairluti V and Nagaluti IV	106
Nagaluti Coupe III	150
Bairluti Coupe IV	318
Sudem IV and Pangidi III	271
Pasurtla Coupe III	65

Contractors made difficulties about the dumping of debris in lines, with the result that the rates offered by the contractors for each coupe show a considerable reduction in the sales held at the close of the year.

Cuddapah North and South.—A beginning was made with sowing of seeds in areas in which coupe-debris had been burnt. As the operations started only at the close of the year, the result of sowings made in May 1930 will be commented on in the next report.

In *Cuddapah North* 46½-acre sandal propagation centres were opened during the year. Owing to lack of timely rains the dibbling proved a complete failure in all except a few centres where a few seedlings have been raised. The sandalwood trees already established in Vaneswaram, Rollabodu, Kothabhavi, Dasarladoddi, Kondagorlapenta, Kadikonabhavi and Komativanibhavi are thriving.

(*c*) Afforestation.

41. Nil.

(iii) *Plantations and other forms of regeneration not under working plans or schemes.*

42. *Anantapur.*—The old sandal plots of 1921-22 in Avulakonda, Horsleykonda, Pentsupad, and Thavalam reserved forests are reported to be well established.

A plot of 10 acres in Gunda reserved forest was sown with tangedu at a cost of Rs. 18–10–0.

Ninety per cent of the patches in which sandal seeds were dibbled in 1928-29 are reported to have failed. Out of 950 plants which were *transplanted* into patches in the previous year, only three plants survived the hot weather.

In Moka plantation the Dalbergia sissoo has regenerated itself profusely by root-suckers. In Kupgal plantations there continues to be excellent natural regeneration of Hardwickia binata. The Hardwickia plantations formed previous to 1900 are on the whole a satisfactory achievement. Banasavai plantation continues to be a failure. The trees, Nim principally, appear entirely unhealthy; and no improvement can be looked for.

Kurnool East and West.—The teak plantations are progressing satisfactorily.

Kurnool West.—Systematic efforts were made to localize areas suitable for sandal in every forest guard's beat but the results obtained so far are reported to have not been satisfactory. A sum of Rs. 35 was spent on this during the year.

Cuddapah South.—A sum of Rs. 66 was spent on sandal sowing in all the ranges in five selected localities in each range during the year. There were in addition basket sowings in Cuddapah range. The sowings in Sanipaya and Cuddapah are reported to have been a failure and in other ranges it is not very satisfactory. The existing sandal plots in all the ranges are reported to be thriving well. There were some casualties in the Kodur Red Sanders plantation of seedlings 2 to 5 inches in girth on account of the prolonged drought.

(iv) *Tending.*

43. *Anantapur.*—A sum of Rs. 50 was spent in uprooting Strobylanthes in portions of Horsleykonda reserve.

Kurnool West.—An amount of Rs. 20 was spent in clearing teak plantations in Pecheruvu range. The operations consisted in freeing the crowns and tops of trees from overhead shade.

Cuddapah North.—A sum of Rs. 40 was spent for tending the worked improvement coupes of 1928-29 over an aggregate area of 1,048 acres.

In *Kurnool South* and *Cuddapah South* no amount was spent as it was done free of cost by the subordinates.

(v) *General.*

44. *Cuddapah South.*—The teak trees at Kangamadugu, the mahogany at Kodur, Mogalipenta and Kangamadugu, Gothimanikonda reserved forest and the Eucalyptus at Mogilipenta planted several years ago as an experiment and on a very small scale are reported to be thriving.

CHAPTER IV.—EXPLOITATION.

(*a*) System of Management.

(i) *Major forest produce.*

45. Sylvicultural systems in force were—

(i) Clear-felling with natural regeneration.
(ii) Simple coppice.
(iii) Coppice with standards.
(iv) Improvement fellings.
(v) Selection fellings.
(vi) Selection cum improvement.
(vii) Improvement cum clear-felling.

46. (i) *Clear-felling with natural regeneration under the high forest system.*—This was confined to an area of 374 acres in the Sirvel Nallamalais of *Kurnool South* division.

(ii) *Simple coppice.*—In fuel coupes an area of 888 acres in *Anantapur*, 321 acres in *Kurnool East*, 2,622 acres in *Kurnool South*, 1,766 acres in *Cuddapah North* and 1,158 acres in *Cuddapah South* were exploited during the year.

(iii) *Coppice with standards.*—The areas dealt with under this system were 806 acres in *Kurnool South*, 1,617 in *Kurnool West*, and 171 in *Cuddapah North*.

(iv) *Improvement fellings.*—In *Anantapur*, an area of 370 acres was worked under this system in Ganganapalle and Vempalle ranges coupled with artificial regeneration. In *Cuddapah North* and *Cuddapah South* the areas dealt with were 1,576 and 3,236 acres respectively.

(v) *Selection fellings.*—In *Anantapur*, small timber for agricultural purposes was extracted over an area of 14,054 acres, and palmyra timber over an area of 653 acres. In *Kurnool East*, dead and dying Hardwickia trees of over 42 inches in girth were extracted from an area of 3,143 acres for agricultural implements and building materials, as also moribund *Terminalia tomentosa*, *Anogeissus*, and *Pterocarpus marsupium* above 18 inches in girth were extracted. In the same division, softwoods above 42 inches girth at 1 foot from ground level were exploited from an area of 3,940 acres in one coupe. Though three other coupes were leased out, the contractors did not work them for want of demand for the produce. In *Kurnool South* a softwood (*Givotia rottleriformis*) was extracted departmentally from Chelama, Sirvel and Gundlakamma ranges and sold to the slate-frame makers at Markapur. Business in this connexion is fitful and unreliable. In *Cuddapah South*, extraction of mature Red sanders trees of and above 32 inches girth was undertaken departmentally under selection system

in selected blocks in all the ranges. The timber so extracted was converted into posts of saleable sizes, and where the trees proved unsound the heartwood was converted into ' Dollwood.' In addition to these, *Shorea talura* was extracted for preparation of felloes, in Balapalle range.

(vi) *Selection cum improvement.*—Fellings under this system were confined to an area of 691 acres, in the what are called ' Timber in bamboo ' coupes. This was in Chelama and Gundlakamma ranges of *Kurnool South* division.

(vii) *Improvement cum clear-felling.*—An area of 169 acres was worked under this system in Dornal and Turimella ranges of *Kurnool East* division. In the former range the work was done departmentally : in the latter it was done by contractors.

In addition to the above, ' dead-wood operations,' viz., collection of rafters, extraction of spokes and felloes of *Pterocarpus marsupium,* and extraction of beams of *Hardwickia, Terminalia tomentosa* or *Bassia,* were carried out in Dornal and Turimella ranges of *Kurnool East* division.

The total output of timber was 407,000 cubic feet and of fuel 8,540,000 cubic feet from both the working plan and non-working plan areas of reserves in the Circle.

(ii) *Minor forest produce (including bamboos and grazing).*

47. Three methods of extraction were in vogue—

(1) departmental collection,
(2) leasing the right of collection, and
(3) collection on permits.

The first method was employed only for repairs to departmental buildings, etc.

Leases.—Bamboo coupes were, as in the previous year, leased out to contractors, in all the divisions. The collection of minor forest produce was also effected through lessees. The tangedu bark leases contracted in the year 1928-29 were also current in the year under report as the leases were for a period of two years in all divisions. Rela bark was sold on a rotation of five years in all divisions. There was little demand for Nux-vomica. It was sold for low amounts in three ranges in *Anantapur,* in one range, in *Kurnool South,* in two ranges in *Cuddapah North,* and in four ranges of *Cuddapah South.* The long-term leases of slab-quarries in *Kurnool West* were current during the year. The right to collect ' Naramamidi ' bark (*Litsaea polyantha*) from the reserves of Badvel and Vontimitta ranges of *Cuddapah North* division was, for the first time, leased out during the year. Surabi bark (*Ventilago madaraspatana*) in two reserves of Vontimitta range of *Cuddapah North*

and Balapalle range of *Cuddapah South* was also leased out. The right to collect Tumki (*Diospyros melanoxylon*) for bidis and platter leaves was sold in all divisions. There was keen demand for the former during the year.

Collection on permits.—Permits were issued on payment of seigniorage rates for removal of thorns, stones and gravel from reserves.

Grass.—Free removal of fodder and thatch grass from reserves in head-loads in all the divisions; and in cart-loads, free, in the *Cuddapah district* only, was continued. In *Kurnool East* division the Collector permitted the free removal of grass on cart-loads from the areas open to grazing on account of severe drought and the concession was current for a quarter of the year from September 1929 to the end of November 1929. It was withdrawn from 1st December 1929 as the situation improved. A nominal fee of 5 annas per cart-load was levied for removal in cart-loads in *Anantapur* and *three Kurnool divisions.*

It may be observed that in villages adjacent to the Kurnool Nallamalais a cart-load of such grass has a sale value of Rs. 5 and upwards, according to the length of the lead from the forest.

Manure leaves.—Two hundred and eighty-seven cart-loads in *North Cuddapah,* and 1,321 cart-loads in *South Cuddapah,* were removed during the year at Re. 1 per cart-load. Removal was allowed in the other divisions of the Circle at Rs. 2 per cart-load. The demand was appreciable only in *Anantapur* division where it is wanted for wet cultivation in Bukkapatnam range.

Grazing.—This was, as usual, controlled by permits, a single permit being valid for a whole range. The proposal regarding unification of grazing fees, referred to in the last report, was not sanctioned by the Government. The question of enhancement of the grazing fees was also considered by the Agricultural Advisory Committee formed for the purpose of considering the recommendations of the Royal Commission on Agriculture. The Committee recommended that grazing fees should not be raised but that—

(1) the Forest department may encourage the cutting of grass in forests,

(2) as an experiment in certain places cattle may be kept confined in pens and grass cut and taken to them; and

(3) in cases where particular grazing areas in forests have to be specially protected, they may be closed to cattle.

Orders were issued in G.O. Mis. No. 1816, Development, dated 25th October 1929, for taking necessary action on the above recommendations. The result of the action taken in the matter

was reported in detail by my predecessor to the Chief Conservator of Forests at the close of the year under report, extracts of which are reproduced below :—

" As regards (1) there already is a widespread concession for the free removal of grass in *head-loads* from all the reserves in each division and this concession extends even to removal in cart-loads in both the divisions of *Cuddapah*. The concessions are being very largely availed of in all the divisions and no further steps are required to stimulate grass cutting in this way."

* * * *

" The question of building stalls at Government expense at the edge of reserves was fully investigated by all the District Forest Officers and it is reported that the proposal is not at all popular with the graziers anywhere. It is therefore submitted that the experiment ordered is not feasible and cannot therefore be carried out."

* * * *

" . . . A detailed examination of reserves was ordered to be made so as to help the mapping out of all areas which had been subjected to systematic overgrazing as a preliminary to the formulation of proposals, in consultation with Collectors, for the closure of any part of them either permanently or for any specific period. In view of the fact that all the overgrazed areas happen to be in the neighbourhood of villages, it is feared that under the present political conditions, the closure of such areas to grazing will give a handle to unscrupulous agitators to create local trouble. It is therefore my humble view that no steps towards the closure of these areas to grazing need at present be taken."

* * * *

(*b*) Agency of Exploitation.

(i) *Departmental Agency.*

48. The outturn of major and minor produce by departmental agency is compared with that of the previous year in the following table :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboo—Value.	Minor forest produce—Value.
			Rs.	Rs.
1928-29	88	255	889	613
1929-30	57	324	347	134

The decrease under timber was chiefly in *Cuddapah North* division. This is due to a large outturn of nearly 30,000 cubic feet of timber obtained in the previous year (1928-29) by the collection and sale of wind-fallen trees.

The decrease under fuel was mainly in *Kurnool West* division due to the replacement of departmental working by contract agency.

The decrease under bamboo was in *Kurnool East* division due to working of only one bamboo coupe in the interior, to provide work for Chenchus.

The decrease under minor produce was in *Kurnool East* division due to the leasing out of the right to collect the produce on a larger scale than in the previous year.

In *Anantapur*, 4,053 lbs. of sandalwood were extracted from dead trees in Madanapalle range (Horsleykonda reserve) and in Hospet range (Gunda reserve).

Similarly 1,018 lbs. were extracted from Kodur Red Sanders plantation in *Cuddapah South* division. The produce was despatched to Vellore depot for sale and it fetched nearly Rs. 1,000.

An amount of Rs. 38,517 was realized by the sale of timber departmentally. Deducting the expenditure including overhead charges there was a profit of Rs. 18,709 which works out to As. 5-5 per cubic foot.

(ii) *By purchasers.*

49. The following statement shows the quantity of major produce and the value of minor produce removed by purchasers during the year and in the previous years :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Minor forest produce and grazing.
			Value.	Value.
			Rs	Rs.
1928-29	655	4,739	65,759	5,61,312
1929-30	626	8,445	72,967	5,60,122

The decrease under timber was under ' Unreserved lands ' in *Anantapur* and *Cuddapah North* divisions. In the former it was due to fewer removals of trees on darkhast lands; while in the latter division there were no removals of wind-fallen trees, as in the previous year.

The increase under fuel was due to a large outturn from 'Reserves' in all divisions except *Kurnool East*. This was partly due to leasing out of a larger number of coupes, including arrears of

previous years, as per working plans either newly sanctioned or under preparation; and was partly due to steps taken to ensure more accurate computation of figures of yield furnished by contractors. The contractors' figures were checked with 'indicator area' figures. There was also insistence on prompt submission of contractors' accounts—vide Chief Conservator's instructions in last year's review on the Administration Report.

The increase under bamboos was in *three Kurnools* and *Cuddapah South* divisions. It is attributed partly due to keener competition at the sale of bamboo coupes and partly due to the areas sold during the year being well-stocked with bamboos.

The decrease under minor produce including grass and grazing is small, being only Rs. 1,190 and does not call for comments.

(iii) & (iv) *By free grantees, and right-holders and under privileges.*

50. The following table shows the quantity and value of the produce removed under this head:—

	Timber.		Fuel.		Bamboos.		Minor produce and grazing.	
	In thousands of cubic feet.		In thousands of cubic feet.		Value.		Value.	
	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.
					Rs.	Rs.	Rs.	Rs.
Free grantees ..	28	28	2	1	185	425	192	51
Rights and privilege holders.	..	..	..	..	75	..	3,697	3,853

Free grants.—Free grants were made from reserves and unreserves in all divisions chiefly for rebuilding houses burnt by fire. There are no large variations in the figures requiring any special comments.

Rights and privileges.—The Chenchus in the three *Kurnools* continued to avail themselves of the concessions granted to them at the forest settlement, viz., free removal of timber for their huts, of minor forest produce for their own bona fide purposes, and of free grazing in respect of their own cattle including goats. The investigation into the increased number of cattle owned by the Chenchus and other allied matters by a special officer referred to in the last year's report was completed and the report was submitted to the Chief Conservator of Forests as stated in paragraph 79 of Chapter VIII. The settlers at Chelama, Diguvametta and Isukagundam continued to enjoy the privilege of free grazing in respect of their cattle under the terms of the licences issued to them for

settling in forest reserves. The grazing concessions in the *North* and *South Cuddapah* divisions referred to in the previous year's report continued to be in force during the year.

(*c*) OUTTURN AND SOURCES OF FOREST PRODUCE.

51. The total outturn from all agencies is compared in the following statement:—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos value.	Gross value of minor forest produce including grass and grazing.
			RS.	RS.
1928-29	771	5,096	66,908	5,65,814
1929-30	711	8,770	73,741	5,64,160

All the important variations have been explained above.

CHAPTER V.—FINANCIAL RESULTS.

52. The statement below shows the financial position of the year under report compared with that of the previous year for the Circle as a whole:—

Details.	1929-30	1928-29.
	RS.	RS.
Receipts.		
Revenue	10,21,576	* 9,46,905
Deduct Refunds	2,419	2,367
Net total ...	10,19,157	9,44,538
Expenditure.		
8. b. Conservancy and works ...	90,928	88,966
52-A. Capital Outlay ..	20,808	6,229
	1,11,736	95,195
8. c. i. District Establishment ...	4,22,647	4,21,947
Grand total expenditure ...	5,34,383	
Surplus ...	+4,84,774	+4,27,396

* Excludes Rs. 848 credited in IV Circle.

53. During the year the gross revenue and the total expenditure were increased by Rs. 74,671 and Rs. 17,241 respectively which resulted in a surplus of Rs. 57,378 over that of the previous year.

The percentage of the several items of Revenue and Expenditure is noted below in a comparative form :—

Items.	1929-30.	1928-29.
Receipts.		
	PER CENT.	
Major produce—Forest department	24·9	21·2
Major produce—Revenue department ...	5·1	6·1
Bamboos—Forest department	7·1	6·7
Grass and grazing—Forest department ...	16·8	17·5
Minor produce—Forest department	5·1	5·8
Minor produce—Revenue department ...	32·2	33·4
Other items—Forest department	8·8	9·3
Expenditure.		
8. b. Conservancy and Works and 52-A. Capital Outlay—		
Exploitation of forests	57·8	57·9
Upkeep and improvement of forests	41·8	41·5
Miscellaneous items	0·4	0·6

54. The important variations under 'Receipts' and 'Expenditure' are explained below :—

RECEIPTS.

Major produce—Forest department.—The increase was under 'Fuel' by purchasers.

	RS.
Fuel	+84,890

All the divisions contributed to this increase as shown below :—

Name of division.	Amount of increase.	Explanation therefor.
	RS.	
Anantapur	3,284	Due to the opening of fresh fuel coupes during the year.
Kurnool East ...	1,442	Due to the leasing out of two coupes of softwood, and two more fuel coupes, in Turlimella range, during 1929-30 than those in 1928-29.
Kurnool South	4,751	Due to the apportionment of revenue of timber cum fuel coupes between timber and fuel.

Name of division.	Amount of increase. RS.	Explanation therefor.
Kurnool West ...	... 14,162	Due to large number of coupes sold under the contract system instead of working them departmentally as in the previous year and also to apportioning the revenue of timber coupes to fuel also.
Cuddapah North ...	20,813	Due to the keen demand for fuel by Madras market and to the opening of additional number of coupes.
Cuddapah South ...	40,433	Due to the leasing out of 47 coupes during the year under report against 39 only in the previous year.

Major produce—Revenue department.—The decrease was under timber and fuel.

	RS.
Timber	3,126
Fuel	2,284

Anantapur and *Cuddapah North* divisions contributed to the decrease.

Anantapur division.

	RS.
Timber	2,126
Fuel	1,238

Due to fewer number of applications for darkhasts.

Cuddapah North.

	RS.
Timber	1,000
Fuel	1,046

There was no revenue during the year on account of windfalls as in 1928–29.

Bamboos—Forest department—Increase (+ *Rs.* 9,559).—The increase was mainly under purchasers in *Kurnool South* and *West* divisions.

Kurnool South (+ *Rs.* 4,074).—Due to better prices obtained during the year.

Kurnool West (+ *Rs.* 5,485).—Due to better prices obtained for bamboo coupes owing to keener competition among the bidders this year than in the previous year.

Grass and grazing—Forest department—Increase (+ *Rs.* 5,793).—The increase was mainly in *Kurnool South* division and it was due to advent of larger number of foreign cattle for grazing during the year under report.

Minor produce—Forest department—Decrease (*Rs.* 4,210).—The decrease was mainly in *Kurnool West* division and it was due to the non-realization of the balance lease amount due for certain slab quarries in the division.

Minor produce—Revenue department—Increase (*Rs.* 12,950).—The increase was due to large revenue realized under 'Tree-owners' fees' which is included under 'Minor produce'.

Other items—Forest department—Increase (*Rs.* 4,986).—The increase was due to larger sums realized on account of compounding fees in *Kurnool South* division than in the previous year.

EXPENDITURE.

8. *b. Conservancy and Works and* 52-*A. Capital Outlay—Exploitation of forests—Increase* (*Rs.* 8,463).—The increase was in *Kurnool South* and *Cuddapah South* divisions.

Kurnool South division.—Due to extensive departmental operations as compared with the previous year.

Cuddapah South division.—Due to the employment of larger number of watchers consequent on the reduction of excess number of foresters (originally in charge of beats) and to charges incurred for laying out of more number of improvement felling and fuel coupes during 1929–30.

Upkeep and improvement of forests—Increase (*Rs.* 8,273).—The increase was brought about by an increased expenditure of Rs. 14,579 under '52-A. Capital Outlay' and by a reduction of Rs. 6,306 under '8. b. Conservancy and Works.'

52-*A. Capital Outlay—Increase* (*Rs.* 14,579).—The increase is in all the divisions and it is accounted for as follows:—

Name of division.	Increase.	Remarks.
	RS.	
Anantapur	4,421	Due to acquisition of a new building at Madanapalle for range office and quarters.
Kurnool East	4,586	Due to construction of combined range office and quarters and of range clerk and subordinates' quarters at Ganjuvaripalli.
Kurnool South ...	1,058	Due to construction of subordinates' quarters at Isukagundam and digging a well at Sundrapodu.

Name of division.	Increase. RS.	Remarks.
Kurnool West	2,618	Due to part-construction of Adutla-Sudem road.
Cuddapah North ...	1,248	Due to completion of subordinates' quarters at Balayapalle and improvements to certain wells.
Cuddapah South ...	648	Due to construction of range quarters at Rajampet.

8. *b. Conservancy and Works—Decrease* (*Rs.* 6,306).—This was due to minimum repairs to roads and buildings carried out in all the divisions and to the reduction of pay of bungalow watchers from Rs. 10 to Rs. 5 in *Cuddapah North* division.

55. 8. *c. i. District Establishments—Increase* (*Rs.* 700).—The increase is small and calls for no remarks.

The financial results of each division are dealt with below taking into account the 'Direction' charges apportioned to the district:—

ANANTAPUR.

	1929-30. RS.	1928-29. RS.
Receipts	3,96,702	3,72,724
Charges	72,597	77,699
Surplus	3,24,105	2,95,025

This is the division in the Circle which, as usual, has contributed specially to the surplus of revenue over expenditure for the whole Circle. The increase of Rs. 23,978 in the gross revenue, during the year, was partly due to the revenue obtained by the sale of larger number of timber, fuel and bamboos coupes as per new working plan and partly to large revenue obtained from unreserved lands under 'Tree-owners' fees.' The various items which contributed to the gross receipts are detailed below:—

	PERCENTAGE.
Major produce—Forest department	3
Do. Revenue department	9
Grazing revenue—Forest department	8
Minor produce—Forest department	5
Do. Revenue department	70
Other items—Forest department	5

The decrease of Rs. 5,102 under charges was due to absorption of some surplus guards and transfer of lower grade rangers to this division in place of higher grade rangers previously employed.

KURNOOL EAST.

	1929-30. RS.	1928-29. RS.
Receipts	61,229	62,538
Charges	83,094	77,867
Deficit	21,865	15,329

The deficit was greater than that of the previous year by Rs. 6,536 due to increased charges by Rs. 5,227 and it was due to the construction of new buildings for subordinates and to the payment of larger amount of leave allowances.

The percentage of several items of revenue was as follows :—

	PERCENTAGE.
Major produce—Forest department	19
Do. Revenue department	2
Bamboos—Forest department	7
Grazing revenue—Forest department	52
Minor produce—Forest department	5
Do. Revenue department	6
Other items—Forest department	9

KURNOOL SOUTH.

	1929-30. RS.	1928-29. RS.
Receipts	1,38,074	1,28,188
Charges	92,716	85,338
Surplus	45,358	42,850

The surplus was greater than that of the previous year by Rs. 2,508 owing to increased revenue, by Rs. 9,886 ; and it was due to better prices obtained for bamboo coupes and to the advent of large number of foreign cattle for grazing during the year under report.

The percentage of the several items of revenue was as follows :—

	PERCENTAGE.
Major produce—Forest department	38
Do. Revenue department	2
Bamboos—Forest department	24
Grazing revenue—Forest department	17
Minor produce—Forest department	2
Do. Revenue department	3
Other items—Forest department	14

KURNOOL WEST.

	1929-30. RS.	1928-29. RS.
Receipts	1,80,796	1,79,234
Charges	1,17,731	98,448
Surplus	63,065	80,786

The surplus during the year was Rs. 63,065 against Rs. 80,786 of the previous year. The increase under revenue was due to favourable prices obtained for bamboo coupes. The large increase under expenditure was chiefly due to (1) construction of Adutla-Sudem road and (2) a senior officer being in charge of the division and one Extra Assistant Conservator being attached to the district.

Of the gross receipts—

22 per cent was derived from major produce (Forest department).

6 per cent was derived from major produce (Revenue department).

13 per cent was derived from bamboos (Forest department).

20 per cent was derived from grazing revenue (Forest department).

8 per cent was derived from minor produce (Forest department).

18 per cent was derived from minor produce (Revenue department).

13 per cent was derived from other items (Forest department).

CUDDAPAH NORTH.

	1929-30. RS.	1928-29. RS.
Receipts	85,523	84,466
Charges	82,051	86,640
Surplus	3,472	2,174 (Deficit).

There was substantial improvement in the working of the division during the year as the net result showed a surplus of Rs. 3,472 against the loss of Rs. 2,174 in the previous year. This was due to decrease under 'Charges' by Rs. 4,589. This was due to not holding the 1930 session of the Vernacular Training School during the year. The chief sources of revenue were from—

	PERCENTAGE.
Major produce—Forest department	41
Do. Revenue department	2
Bamboos—Forest department	4
Grazing revenue—Forest department	31
Minor produce—Forest department	6
Do. Revenue department	6
Other items—Forest department	10

CUDDAPAH SOUTH.

	1929-30. RS.	1928-29. RS.
Receipts	1,56,833	1,17,388
Charges	86,194	91,150
Surplus	70,639	26,238

The division worked at a greater profit than in the previous year by Rs. 54,401. The large increase in revenue by Rs. 39,445 and a further reduction in charges by Rs. 4,956 contributed to this large surplus.

The increase in revenue was contributed chiefly by—

(1) *Major produce—By purchasers.*—On account of increase in the number of fuel coupes worked 47 against 39 in the previous year.

(2) *Bamboos (Forest department).*—Due to better prices realized for Balapalle bamboo block I on account of keen competition among the bidders.

(3) *Grazing.*—Due to more revenue realized during the year on account of early rains and to the advent of more foreign cattle during the year.

(4) *Minor forest produce—Forest department.*—Due to the realization of the balance lease amounts for tooki leaf of 1928–29 during the year, and to larger amount realized on the sale of manure leaves during the year on account of increase in the area of wet cultivation.

The decrease of Rs. 4,956 under 'Charges' was due to—

(1) *Roads and bridges.*—Less amount spent on the repairs to roads during 1929–30 in Rajampet range as some of them were not in need of repairs.

(2) *Buildings.*—Less amount spent in 1929–30 on account of repairs to buildings as large number of buildings were repaired substantially in 1928–29 on account of damages caused by the cyclones.

(3) *Other works.*—Less amount spent under this head as unlike in the previous year tending of felled coupes was done in 1929–30 free of cost by the subordinates.

(4) 8. *c. i. District Establishments—Pay of Establishments—Permanent.*—Reduction in the number of foresters (in excess of the requirements) and of forest guards during 1929–30 resulting in the corresponding increase in the number of watchers whose pay is debitable to B. II.

Of the total revenue, major produce brought in 66 per cent (of which only 1 per cent was from unreserves)—

	PER CENT.
Grazing	12
Bamboos	5
Minor produce—Forest department	6
Minor produce—Revenue department	4
Other items—Forest department	7

It will be observed from the above that all the divisions in the Circle except *Kurnool East* worked at a profit during the year under report.

56. The outstanding revenue at the close of the year was Rs. 3,44,111 of which Rs. 3,25,648 fell due after 31st March 1930 being the lease amount of coupes and minor produce leases.

57. The estimated value of timber and other produce in the sale depots at the close of the year was Rs. 2,434 against Rs. 993 at the commencement of the year.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

Research.

58. Nil.

Experiments.

59. The following experiments were carried on by the district staff :—

(i) *Anantapur.*—Experimental sowing of tangedu was continued during the year over a further extent of 10 acres in the Gunda reserve, the seeds being sown in ploughed furrows, 2½ feet to 4 feet apart, at a cost of a little under Rs. 2 per acre. Results were not reported.

(ii) *Cuddapah North.*—Six half-acre sample plots were opened during the year in Nallamalais, Palkondas and Lankamalais with a view to determining the rate of growth of 'standard saplings' and coppice shoots. The readings have to be taken once in five years.

(iii) *Cuddapah South.*—Sample plots opened previously with a view to arrive at the girth increment of Red sanders trees were maintained.

Sample plots previously opened in selected improvement felling coupes, to obtain observations regarding the flowering and seeding of Red sanders, continued to be maintained.

Observations in the three experimental plots which are under the direct control of the Forest Research Officer were recorded; and periodical reports were sent to him during the year. The Forest Research Officer inspected these plots in December 1929.

During the year, on requisition from the Tata Research Institute, Bangalore, and under instructions of my predecessor, a sample of heartwood of sandal from a tree growing amidst Red sanders in the Koudr Red Sander plantation was sent up for analytic investigation. The object was to ascertain if the colouring

matter of Red sanders becomes transferred to sandal. The roots of the sandal tree (of which the sample was sent) were dug up, and it was established that it had formed attachments with the roots of Red sanders trees in four places ; and also with those of *Cassia siamea, Eugenia jambolana* and margosa trees.

Ten pounds of bark of 'Naramamidi' (*Litsaea polyantha*) and a bag of fresh Botha grass with roots were also sent to the above institute for investigation, with a view to determining the oil value of the two species.

The results of the investigations are awaited.

(iv) *Kurnool district.*—As stated in the previous year's report all the experimental research plots opened by the Special Sylvicultural Officer (Mr. B. S. Kesava Vittal) in 1925–26 and 1926–27 were abandoned during the year. An exception was the rab-sown plots which will be maintained under rigid fire-protection. In these, periodical measurements will continue.

Stump planting, and also the use of germinating seeds, 4 ft. by 4 ft., is to be tried in a cleared and burnt area of 5 acres under the Chief Conservator's orders. Rigid fire-protection and weeding will be carried on.

The Yepi experimental plot at Chelama (*Kurnool South* division) continued to be maintained during the year.

60. *Experimental early burning plots.*—Experimental sample plots opened in the Red sander forests in *Anantapur, Cuddapah North* and *Cuddapah South* divisions were maintained. The object is to test the efficacy of early burning. Variations in treatment are provided. In addition to these experiments, four new plots were opened during the year in *Cuddapah North* division under the instructions of my predecessor—

First plot.

(i) Seedlings of Red sanders to be cut back immediately before early burning.

Second plot.

(ii) The grass to be late burnt without cutting back seedlings.

Third plot.

(iii) Seedlings to be cut back immediately after early burning.

Fourth plot.

(iv) To serve as a control plot rigidly protected against fire where no cutting back operations and no weeding round seedlings should be done.

It is reported that the height measurements of seedlings taken in the abovementioned plots do not yet enable conclusions being reached as to the effect of early burning, late burning, etc., and that the plots will have to be observed for a couple of years more before we can arrive at results.

61. *Experimental manufacture of charcoal.*—During the year a demonstration of the manufacture of charcoal in the 'Trihan' portable charcoal kiln was carried out at Kodur in *Cuddapah South* division and at Dhone in *Kurnool West* division by the Officer in charge of Minor Forest Products, Forest Research Institute, Dehra Dun. My predecessor and the District Forest Officers of *two Cuddapahs* (at Kodur) and *three Kurnools* (at Dhone) were also present. The object of the demonstration was to induce the local contractors to take to manufacturing charcoal according to modern methods, it being thought that this might enable remote portion of reserves to be exploited. The experiments were carried out both in the 'Trihan' kiln and in the paraboloidal overground kiln. The results gave a yield of charcoal of (by weight) only 15 per cent of the fuel used. Working out the profit and loss it was concluded that it would not be a paying concern to work distant areas for charcoal by this method.

CHAPTER VII.—ADMINISTRATION.

62. M.R.Ry. Rao Sahib K. R. Venkataramana Ayyar Avargal held charge of the Circle throughout the year.

63. *Changes in territorial jurisdiction.*—An area of nearly 12 square miles forming a part of Palkondas and its extension reserve, of Sanipaya range of *Cuddapah South*, was added to Cuddapah range of the same division, for administrative convenience.

64. *Tours.*—The Chief Conservator visited the Circle twice during the year. In July 1929 he inspected the Nallamalais forests in Gundlabrahmeswaram and Bairluti ranges of *Kurnool West* division and the Isukagundam Valley forests of *Kurnool South* division. In January 1930 he visited *Kurnool* to discuss with the Collector questions of Chenchu administration. On his way back to Madras he inspected the Kodur plantation and Red sanders forests of Balapalle range of *Cuddapah South* division.

The Conservator toured in all the divisions during the year and spent 182 days in camp. Inspection notes on forests were drawn up for *Kurnool East*, *West* and *Cuddapah South* divisions. All the District Forest offices were inspected. With one exception the

results were generally satisfactory. In the case of *Anantapur* office which was not in satisfactory order a special report was submitted to the Chief Conservator.

All the District Forest Officers toured for more than the prescribed minimum except the District Forest Officer, *Anantapur*, who was in camp for 146 days. The short touring was due partly to the change in the personnel of the District Forest Officers and partly to the state of the office, which obliged the District Forest Officer to stay at headquarters a good deal.

65. *Range office inspections.*—All the Range offices in the Circle were inspected by the District Forest Officers during the year.

66. *Audit.*—All the District Forest offices were inspected by Audit officers and the results were generally satisfactory.

67. *Recruitment to the Madras Forest College.*—Nobody was deputed during the year.

68. *The Vernacular Training School.*—The 1929 session of the school was held as usual in the *North Cuddapah* division. The session was from 16th January 1929 to 15th July 1929. The usual report was submitted to the Chief Conservator after the close of the year. No school was opened in 1930, as there were no more untrained forest guards in the Circle qualified for training.

69. *Health of establishment including an account of measures of sanitation and casualties.*—The health of the establishment was as usual bad in the three *Kurnool divisions* and satisfactory in the remaining divisions. One forester in *Kurnool East*, one forester and one forest guard in *Kurnool South*, three foresters and two forest guards in *Kurnool West* died of malaria. One forest guard in *Cuddapah South* died. No special measures of sanitation were undertaken beyond clearance of jungle and vegetation adjacent to staff quarters.

CHAPTER VIII.—GENERAL.

1. Formation and Management of Panchayats.

70. The total area of ryots' forests was reduced from 1,458 square miles to 1,448 square miles during the year. This was due—

(i) to the resumption by the Forest department of E.N. Block V reserve (13 square miles) in *Kurnool East* division and Tunukonda reserve (2 square miles) in *Cuddapah South* division from the panchayat management as the panchayatdars refused to continue their management; and

(ii) to the adoption of resettlement area figures furnished by the Revenue department.

One reserve (Chenulapalle) of *Cuddapah North* division, referred to in the last year's report, was not handed over to panchayats, as the Collector has found it impossible to form a panchayat for this area. Though classified under Class III it continues to be under the management of the Forest department.

The Adoni East and West reserves (Class III) of *Anantapur* division referred to in the last year's report continued to be managed by the Adoni municipality subject to the supervision and control of the Forest department.

A new panchayat for Pyapalle main reserve in *Kurnool West* was formed during the year.

The question of taking back all ryots' forests (eight in number aggregating to an area of 37·28 square miles) which are contiguous to the Nallamalais in *Kurnool East* division was under the consideration of Government during the year.

2. Measures for improving Local Supplies and Facilities.

71. The needs of the public in the matter of small timber and fuel were met, it would appear, amply in all the divisions, by providing timber and fuel coupes. In *Kurnool East* and *Cuddapah South* divisions additional felling series (one in *Kurnool East* and 18 in *Cuddapah South*) were opened with satisfactory results. The maximum rates which might be charged by the departmental coupe contractors for sale of forest produce to the public for *bona fide* domestic and agricultural purposes were fixed by the Conservator in consultation with the Collectors and published in the Forest Sheets of the District Gazettes. Permits for removal of green manure leaves were, as usual, issued.

72. *Kurnool South.*—The demand for large timber was met by working the Isukagundam Timber Coupe departmentally. The produce was carted to Diguvametta sale depot and almost all was sold during the year. Spokes and felloes were extracted and sold in most of the ranges. Departmental extraction and sale of agricultural implements were undertaken in Chelama and Sirvel ranges. Sales of softwood of *Givotia rottleriformis* referred to in the last year's report were continued, for the benefit of the slate industry at Markapur.

73. *Kurnool West.*—Palmyra trees continued to be sold as usual. Yepi fibre extraction in four coupes, in Yerramalais, continued to occupy the Boyas who have hitherto been credited with stealing this produce for their livelihood. The difficulties of the

supply of fuel to the Kurnool and Nandyal towns at cheap rates, referred to in the last year's report, are reported to continue owing to the impossibility of obtaining cheap transport for the large quantities of fuel lying unremoved in the Nallamalais coupes. Since the opening of the Nizam's Railway through Kurnool, however, large quantities of fuel have begun to be railed from the Nizam's territory. This has relieved the acuteness of the fuel problem of Kurnool town and has lowered the prices of fuel. It has hit badly the contractors of our fuel and pole coupes who now find that large quantities of their produce cannot be brought to Kurnool within the competitive rates now prevailing.

74. *Cuddapah North.*—One coupe was leased out to a co-operative society in public auction.

75. *Cuddapah South.*—Red Sander posts, dollwood and Jalari (that is Shorea talura) felloes were extracted departmentally from selected localities in all except the Cuddapah ranges and were sold locally.

The demand for timber, fuel, etc., in Cuddapah town and its surroundings is met with from working areas in Cuddapah range of this division, Vontimitta and Siddhout of *North Cuddapah* division and Ganganapalli of *Anantapur* division.

Water-supply.

76. A sum of Rs. 1,586 altogether, for the whole Circle, was spent in repairing tanks, deepening wells, and the like in various reserves in each district. This was done in order to keep in good condition important water sources so as to provide water for grazing animals.

The amount spent in the different districts are—

	Rs.
Anantapur	180
Kurnool East	664
Kurnool West	150
Cuddapah South	89

In addition to the above a tube-well was installed at Chinnalettipattibhavi in Nallamalais of Vonipenta range of *Cuddapah North* division at a cost of Rs. 503 for the use of the graziers, subordinates and contractors, etc. In *Kurnool South* division the Ahobilam Mutt authority desired to put in a pipe line from a spring in Sirvel reserved forest and to supply water to pilgrims, etc., during the festivals. The terms were under consideration during the year.

3. Timber and Sandalwood Transit Rules.

77. These rules are in force in *Cuddapah*, *Kurnool* and a portion of *Anantapur* division included in Cuddapah and Chittoor districts, and are reported to have worked satisfactorily. Certain amendments to rule 7 of the Timber Transit Rules of *Kurnool* and *Cuddapah* for making the registration of property mark obligatory, referred to in the last year's report, were submitted to the Chief Conservator of Forests during the year for obtaining the sanction of Government thereto. Though this Circle has not got any very large areas of sandalwood, yet it is believed that a considerable amount of smuggling of sandalwood is taking place, immature sandal trees in the *Anantapur* division being cut. Against this the department is at present powerless in the absence of Sandalwood Transit Rules framed under section 35 of the Forest Act. Proposals were therefore submitted at the close of the year to the Chief Conservator of Forests for the introduction of Sandalwood Transit Rules.

4. Jungle Tribes.

78. *Cuddapah.*—As reported in the previous year's Administration Report some Yanadis continue to reside in the Vontimitta range of *Cuddapah North* division. They are not troublesome people. In *Cuddapah South* some of them are employed as forest guards, though illiterate, as they are well suited for outdoor work in the forests.

Chenchus.

79. *Kurnool.*—(i) A brief account of the administration of affairs touching Chenchu welfare was already reported in the Circle reports for the years 1927–28 and 1928–29. There was much correspondence during the year on the pros and cons of continuing the Chenchu management on the existing lines. The Chief Conservator also paid a visit to Kurnool to discuss this question with the Special Chenchu Officer (Collector). Government have sanctioned, after the close of the year, the continuance of the existing system for five years from 1st April 1930.

To regularize all the departures made, from time to time, from the rights admitted in favour of the Chenchus at the time of the Forest Settlement a Special Officer (Mr. A. V. Sundaram, Extra Assistant Conservator of Forests) was placed on special duty. His report, which was submitted with the Collector's and my predecessor's remarks, is now pending orders with the Chief Conservator of Forests.

The existing organization, for the amelioration of the Chenchus and for providing works congenial to them on which they could make an honest living, continued to work during the year

under the control of the Special Chenchu Officer (Collector), the total expenditure incurred being Rs. 26,922 as against Rs. 26,832 in 1928–29.

The passing of the salary bills, etc., of the establishment of the Assistant Chenchu Officer and those of the Sub-Assistant Surgeon was transferred from the control of the District Forest Officer, Kurnool West, to that of the District Forest Officer, Kurnool East, from 1st August 1929.

(ii) *Monthly earnings of the Chenchus on works directly connected with forests.*—Chenchu labour was utilized in all departmental operations and by contractors wherever they were available on works, such as timber fellings, bamboo extraction, minor forest produce collection, regeneration operations and to some extent on roads and other petty works where skilled labour was not of great importance.

The contractors also engaged Chenchu labour and under the terms of the conditions of their contracts disbursed the amounts due to the Chenchus partly in kind at the local market rates and partly in cash at the gudems.

Besides the earnings on the above works a few of the Chenchus supplemented their earnings by engaging themselves as watchers for field crops of ryots in the adjoining villages. Some of them are employed as headmen, deputy headmen, betta talaiyaris, reserve watchers, forest guards and school teachers for Chenchus.

(iii) *Chenchu crime.*—The number of cases filed in the Court of the Assistant Chenchu Officer during the year was 21. In these 67 persons were concerned as against 13 cases in which 13 persons were concerned during 1928–29. The increase is attributed by this officer to stoppage of work by contractors when demand decreased. Seventeen of these cases relate to forest offences against the Madras Forest Act, three cases of hurt under sections 324 and 326, Indian Penal Code, and one case of mischief under 426, Indian Penal Code.

The Chenchus of Chintalamudipi were granted police rewards for the arrest of a certain Santivadu's gang, who were lost sight of for several years. The rewards amounting to Rs. 165 were distributed by the Assistant Chenchu Officer.

The headmen and deputy headmen appointed for several gudems are reported to have discharged their duties without giving any cause for complaint. They are said to have rendered help in effecting the arrest of some bad characters. On the whole, crime among Chenchus is stated not to be common; and they are also said to be showing a gradual tendency to develop more peaceful and settled habits.

(iv) *Works controlled by the Special Chenchu Officer.*—The total expenditure during the year on Chenchu establishment and works (agriculture, educational and industrial works, including medical relief) controlled by the Special Chenchu Officer was Rs. 26,922. The budget was prepared by the District Forest Officer, Kurnool East division, for the Special Chenchu Officer.

The following is the summary of the expenditure :—

	1929-30			1928-29
	RS.	A.	P.	RS.
8. c. v. Pay of establishment—				
Temporary	15,325	13	0	15,731
Travelling allowance	2,503	13	0	2,500
Fixed travelling allowance ...	287	8	0	300
Fixed conveyance allowance ...	195	0	0	180
Miscellaneous	926	7	0	700
Scholarships	457	6	0	765
Apparatus and materials ...	763	3	0	500
Clothing and equipment ...	730	0	0	500
Books and periodicals	199	0	0	82
Miscellaneous	5,081	8	0	5,574
Total ...	26,469	10	0	26,832
Maintenance and repairs—Communication and buildings ...	451	14	0	
	26,921	8	0	
	or			
	26,922	0	0	

(v) *Agriculture.*—There was an outstanding loan of Rs. 2,192-5-0 at the close of last year. Some of the groups of the Chenchus of Kurnool West and Kurnool East divisions were advanced during the year loans to the extent of Rs. 200 and Rs. 342 respectively. The total recoveries effected during the year were Rs. 592-14-9, thus leaving an outstanding of Rs. 2,141-6-3 at the end of the year.

The Chenchus of Indreswaram and Nagaluti in the Kurnool West division and those of Peddachama, Chilakacherla, Chintala, Tummalabailu, Garapenta, Chennapalem and Peddamantrala in the East division are said to have shown some tendency to go in for cultivation. They realized a fairly good crop in some *gudems*, while there was partial failure in others for want of rains. They raised *sajja, korra, variga, ulavalu* and *cholam.*

The attitude of the Chenchus in general towards cultivation of dry lands (agriculture) has not shown much signs of improvement. They have some plots of land assigned to them and

agreements are obtained from them annually with a view that they may not lose their claim over the plot.

Out of 387·34 acres of land in the Kurnool East Forest division and 44 acres of land in the Kurnool West division assigned free of assessment for cultivation only half the extent was cultivated. The practical demonstration of agriculture by the Lambadis or Sugalis who cultivate lands in the reserved forests on payment of assessment has not as yet had the desired effect, in full.

The Chenchus exercised their rights of free grazing of cattle owned by them. Cattle generally form the wealth of the Chenchus ; it has been suggested that experiments to improve the quality of the cattle will be a move in the right direction, for amelioration of the condition of the Chenchus.

(vi) *Industries.*—There were four industrial schools. Out of those, one, viz., Indreswaram, was closed for want of boys old enough to learn the weaving work carried on in that school. At the other three schools, viz., those at Bairluti, Pecheruvu and Chilakacherla, the pupils received instruction in carpentry. The carpenter at Bairluti and the teacher at Pecheruvu are said to have taken some interest in teaching the pupils tape weaving also. At Chilakacherla the *Medara* instructor taught the boys how to make winnows and fans.

In the Pecheruvu girls' school, the mistress took much interest in teaching her pupils needle-work. A sum of Rs. 5 was spent to provide cloth, needles, thread, etc.

(vii) *Education.*—There were 19 elementary Chenchu schools working last year of which one school, viz., Regatikunta in Markapur taluk, was closed during the year as the gudem was disbanded. One new school was opened at Srisailam in Nandikotkur taluk during the year.

The schools are under the control of the Special Chenchu Officer, Kurnool, supervised by the Assistant Chenchu Officer and Supervisor of Chenchu schools. The Deputy Inspectors of Nandyal, Atmakur and Markapur visited the schools during the year and submitted reports.

The Supervisor of the Chenchu schools visited all the schools once in three months and toured on an average 20 days in a month. Special visits were also paid during the year by the Collector, District Forest Officers and District Educational Officer.

Out of 19 teachers, 15 were trained and the rest were untrained. The untrained teachers were given notice to undergo training during the year, on pain of losing their posts. Three

teachers (2 Chenchus and 1 Muhammadan) completed their teacher's training and were re-entertained. Trained teachers are paid a salary of Rs. 20—1—30 while untrained teachers receive Rs. 15 per month. In addition to this teachers draw a hill allowance of Rs. 5 per mensem: that is to say, excepting Chenchu teachers who are domiciled in the Nallamalais.

Out of 19 teachers employed, 4 are Muhammadans, 7 non-Brahman Hindus, 4 Indian Christians, 1 Sugali, and 1 Indian Christian mistress for the girls' school.

The number of pupils on the rolls at the beginning of the year was 270 boys and 167 girls. At the end of the year the figures were 352 boys and 210 girls. There was thus an increase by 125 pupils.

The *average number* of pupils on the rolls in each school during the year was 17 boys and 11 girls, as against 14 boys and 9 girls last year. The *average attendance* during the year was 12 boys and 8 girls against 11 boys and 7 girls last year. The increase is due to a special campaign conducted by the Assistant Chenchu Officer under the instructions of the Special Chenchu Officer.

The pupils were taught up to the IV Standard, in accordance with the syllabus. This was revised during the year, as per instructions of the District Educational Officer in consultation with the Special Chenchu Officer, in order to make it more suited to the needs of Chenchu pupils.

Out of five boys who were studying last year in the Board High School, Atmakur, with the aid of Government scholarships (Rs. 175 each per year), two discontinued their studies during the year as one got married and the other on account of other domestic reasons. Out of the remaining three boys, one studied in the II Form and the other two in the IV Standard.

A midday meal costing 1 anna per pupil per day was supplied to all pupils; and this, as may well be imagined, had the effect of stimulating attendance at the schools.

All schools are situated near Chenchu gudems. There are thatched buildings to accommodate the schools and the teachers separately and in Bairluti and Pecheruvu there are *pakka* buildings for schools. There are also kitchen sheds for preparation of the midday meal. The expenditure incurred for repairs to school and teachers' sheds during 1929-30 was Rs. 451-14-0. All the sheds were kept in proper repair by the Forest department.

Pupils and teachers suffered as usual from malaria, enlarged spleen, etc. Several teachers were obliged to go on leave. This dislocated work to some extent, as it was difficult to get suitable substitutes for short periods of leave.

The following items of expenditure were incurred in maintaining the schools :—

	Rs.	A.	P.
Teachers' salaries	6,732	0	0
Supervisor's pay	1,060	14	0
Pay of supervisor's peon	156	0	0
Repairs to school sheds	451	14	0
Purchase of furniture	79	7	0
Purchase of books	203	0	0
Cleaning charges	214	1	4
Travelling allowance of supervisor's peon ...	91	11	0
Travelling allowance of teachers (on transfer)...	72	13	0
Clothing and equipment	730	0	0
Scholarships and stipends	457	6	0
Feeding charges (midday meal)	3,541	8	0
Industries	1,326	0	0

(viii) *General.*—As usual the Sub-Assistant Surgeon on Chenchu duty rendered medical aid to the Chenchus at their homes during his itinerary. The health of the Chenchus is stated to have been 'generally satisfactory except for smallpox and cholera which were prevalent in some of the gudems for short periods.' The Sub-Assistant Surgeon rendered suitable aid when the diseases broke out.

There was a change in the personnel of the Chenchu Sub-Assistant Surgeon in February 1930 as the late Sub-Assistant Surgeon fell ill and went away on leave.

Mining and Quarrying.

80. *Anantapur.*—No fresh leases were granted during the year. A sum of Rs. 1,503 was realized from the present lease in Gunda reserved forest of Hospet range.

Kurnool West.—The five-year leases for quarrying slabs and stones continued to be in force.

Applications for prospecting licences are said to be coming in briskly. The applications related to areas varying from 1 acre to 100 acres. This involved considerable additional work for the forest staff. Of late some demand is reported to have arisen for yellow earth (ochre) and some applications are said to have been received. A royalty of 4 annas per ton has been recently fixed by Government for this mineral.

Cuddapah South.—The holder of prospecting licence for manganese ore referred to in the previous year's report did not work during the year.

A fresh application for prospecting manganese in the II plot in Balapalle range adjoining the one already leased out was received, and the licence is said to have since been granted.

LIVESTOCK.

81. (*a*) *Elephants.*—The two baggage elephants referred to in the last year's report continued to be attached to the *Kurnool West* division. They enjoyed indifferent health. The Inspector of Livestock inspected them during the year and suggested some changes in the diet. The older one is reported to have become very feeble; and it is stated that it frequently refuses food. It really serves more as a companion for the younger one than for work.

(*b*) *Buffaloes.*—The two buffaloes at Horsleykonda in Madanapalle range of *Anantapur* division continued to be maintained for carrying water to the subordinates and touring officers of the department, and to the garden in the bungalow compound.

VETERINARY ESTABLISHMENT.

82. Nil.

SUITS.

83. Nil.

CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.

84. Three hundred and forty-six acres of assessed wastes adjoining the Bandri reserve in Hospet range of *Anantapur* division containing an appreciable quantity of sandalwood referred to in the last year's report continued to be under the care of the Forest Department.

ENCLOSURE.

A BRIEF ACCOUNT OF FOREST OPERATIONS AND THEIR RESULTS IN THE SEVERAL DIVISIONS OF THE SECOND CIRCLE, BELLARY, DURING 1929-30.

ANANTAPUR.

Description and area.—The aggregate extent of reserved forests in the division was 1,792 square miles of which 580 square miles represent class I reserves under the control of the department and 1,212 square miles represent class III reserves. In addition to the above, an extent of 346·44 acres or half a square mile of assessed waste in Garga village adjoining Bandri reserve of Hospet range, containing sandalwood growth, was also under the control of the department.

The forests are mainly isolated hills, with small extensions into the plains, and they consist generally of an inferior type of scrub jungle. The only areas which contain inferior timber—mostly poles—are those situated in Ganganapalle and Vempalle ranges forming part of the revenue district of Cuddapah. Some excellent patches of sandalwood are found in Horsleykonda and Amagondapalaiyam reserves; and

there is some scattered growth in some other places in the division. There is also a palmyra plantation of 653 acres in Cuddapah district, which gives a recurring revenue of about two to three thousand rupees per year. This is a remarkable rate of revenue for any forest; but is due to the fact that the trees produced there are valued more highly than those found in unreserves; and as such the dealers are able to dispose of them for between Rs. 5 and Rs. 10 per tree.

The most important revenue-producing resource of the division, however, is not timber or fuel but tangedu bark: unfortunately there are signs that the trade is declining rapidly in favour of imported tanning material.

2. *Subordinate executive and protective charges.*—The division consists of five range charges, with 57 beats. Each range is in the charge of a ranger. The 'beats' are in the charge each of a forest guard, assisted by watchers. The names of ranges and number of beats in each are noted below:—

Name of range.	Number of beats.
Bukkapatnam	12
Hospet	9
Ganganapalle	8
Vempalle	11
Madanapalle	17
Total ...	57

3. *Cost of administration.*—The cost of administration (establishment charges only) during the year was—

	Rs.
(*a*) District Forest Officer	7,676
(*b*) Rangers	5,986
(*c*) Subordinate staff	15,969
(*d*) Clerical staff	8,480
Total ...	38,111

4. *Cost under other important heads.*—No works of any importance were carried out during the year. A new building was acquired for the Range office at Madanapalle at a cost of Rs. 4,040-12-6 and repairs to it were effected at a cost of Rs. 380-8-6. Further repairs are still in progress. An activity in the division is formation of small centres, for the establishment and spread of sandalwood. Dibbling of sandal (in the 53 acres formed last year) to replace casualties and in 56 fresh 1-acre plots was done free of cost by subordinates. Tending of sandal and eradication of Lantana in portions of Horsleykonda were also done free of cost.

Strobilanthes was uprooted in portions of Horsleykonda Lantana blocks 1 and 3 at a cost of Rs. 50.

Charcoal was manufactured as an experimental measure at Bukkapatnam. Eight tons and 316 lb. of charcoal was manufactured from

1,800 cubic feet of fuel and an expenditure of Rs. 123-4-0 was incurred. This has been since sold for Rs. 300. This indicates a possible source of revenue capable of developments. The other works carried out during the year were of a recurring nature, such as demarcation of annual timber and fuel coupes, maintenance of existing roads and buildings and early-burning.

5. *Income from main sources.*—The bulk of the revenue is from tangedu bark (69·53 per cent of the gross revenue) of which a very large share is debitable to unreserves. The revenue from grazing is 8·08 per cent of the gross revenue. There is at present little scope for development of revenue from timber. But, in the matter of fuel, additional coupes were opened during the year with the result that a revenue of Rs. 8,100 was realized against Rs. 4,477 in the previous year.

The introduction of sandal in suitable localities is ultimately expected to increase enormously the value of some of the reserves in the division.

Details of revenue under various items are given below:—

	Rs.	
Sandalwood ...	363	Reserves.
Timber	6,072	Do.
	28,746	Unreserves.
Firewood and charcoal	6,844	Reserves.
	6,560	Unreserves.
Bamboos	547	Reserves.
Grazing	32,293	Do.
Minor produce ...	19,078	Do.
	2,76,944	Unreserves.
Miscellaneous ...	11,741	Reserves.
	8,213	Unreserves.
Total ...	3,97,401	

6. *Chief works in the division.*—One thousand one hundred and seventy-five pounds of sandal was extracted in Hospet and Madanapalle ranges at a cost of Rs. 67-11-0 and sent to the Government depot at Vellore for sale. A sum of Rs. 363 was realized by its sale. In the matter of supply of small timber including palmyra trees, an aggregate extent of 1,402 acres was gone over through lessees and 35,000 cubic feet of timber was extracted. As regards fuel, a quantity of 26,000 cubic feet or 6,500 tons (at 50 cubic feet per ton) extracted from an area of 1,280 acres was placed on the market. Fifty-one thousand eight hundred and ten bamboos were also extracted during the year.

7. The net financial results of the divisions are analysed below:—

	Rs.
Revenue	3,97,401
Expenditure	65,704
Net profit	3,31,697

KURNOOL EAST.

Description and area.—The total area of the reserves under the control of the Forest department in the division is 899 square miles and that under panchayat management is 71 square miles. The division consists of the easternmost and outlying portions of the Nallamalais Hills. All the outer slopes are practically devoid of good tree-growth, except for some scattered old Yepi (*Hardwickia binata*) trees, cripples mostly. A large part of the interior of the hills which supports an irregular, mixed open deciduous forest of varying density, is economically unworkable except for minor forest produce and bamboos. The most important species composing the crop, in the workable portions, are *Terminalia tomentosa*, *Pterocarpus marsupium*, and an occasional inferior teak or rosewood. This type of forest is confined to localities with a 40-inch rainfall. In the less wooded portions the rainfall is only about 20 to 26 inches. Bamboos occur throughout the area of 40-inch rainfall.

An area of 13 square miles of reserves under panchayat management was resumed by the department during the year.

2. *Subordinate, executive and protective charges.*—The division is divided into five ranges, each in charge of a ranger, and is divided further into 37 protective beats, each in charge of a forest guard and a forest watcher. There are 16 foresters sanctioned either for the execution of sanctioned works or to be in charge of selected sections. This strength of foresters has been curtailed to 12, the current requirement of the division. The names of the ranges and the number of beats in each are shown below:—

Name of range.	Number of beats.
1. Dornal	9
2. Ganjivaripalli	5
3. Markapur	7
4. Turimella	10
5. Yerragondapalem	6

3. *Cost of administration.*—The total expenditure for the division under '8. b. Conservancy and Works', '52-A. Capital Outlay on Forests' and 'C. Establishment' during 1929-30 was Rs. 76,200, of which Rs. 55,677 was on the establishment, which is 73·1 of the total expenditure. The charges noted here do not include the expenditure in connexion with the Chenchus during the year 1929-30; for this expenditure, though actually met by Kurnool East division, is devoted to the three Kurnool divisions.

4. *Cost under other important heads.*—The following are the important items of works of the division on which expenditure was incurred during the year:—

Departmental operations.—Felling of timber under Timber 'Improvement cum clear-felling system, selection system, in coupes allotted for the year, and collection of dead wood in prescribed localities'. These operations were undertaken to provide work for the Chenchus and the

amount spent thereon is Rs. 2,042. The maintenance of roads and buildings and regeneration operations and other miscellaneous expenditure cost Rs. 12,935. This sum includes the pay of reserve watchers to the extent of about Rs. 6,000.

On the construction of new buildings and wells a sum of Rs. 5,546 was spent during the year.

5. *Income from main sources.*—The sources of revenue under various items are given below:—

	Rs.
1. Timber and fuel	12,765
2. Bamboos	4,549
3. Grazing and fodder grass	32,044
4. Other minor produce	6,684
5. Miscellaneous	5,263
Total ...	61,305

6. *The chief work done in the forest division.*—The chief work done in the division was concerned with providing work for the Chenchus. These Chenchus are scattered all over the division, in 23 Chenchu gudems. There is an aggregate population of 1,866 consisting of 510 men and 502 women and 854 children. The occupations provided are extraction of timber, bamboos, and collection of minor forest produce. The utilization aims at meeting the requirement of the adjacent ryot population. The agency of exploitation is being gradually changed from departmental agency to the more usual system of giving leases to contractors. These are bound under terms of agreement to employ Chenchu labour, wherever it is available. Ten units of small timber were extracted through departmental agency for the local market. The works were located where demand exists and is according to a sanctioned working plan. Side by side with meeting the requirements of the local ryots in regard to small timber, there is the work of regeneration of the forest. Specialized operations were carried out in selected timber areas. Generally, regeneration is secured by coppicing; but in addition measures have been introduced for augmenting by artificial means the seedling regeneration. Also for promoting the growth of existing natural regeneration.

The usual steps for the amelioration of the condition of the Chenchus were also taken during the year in the matter of their education, industries, agriculture, etc.

7. The net financial results of the division are analysed below:—

	Rs
Revenue	61,305
Expenditure	76,200
Deficit ...	5,105

KURNOOL SOUTH.

Description and area.—The area of reserves under departmental control is 634 square miles. Of this the Nallamalais and its foot-hills cover about 532 square miles, and the Veligondas 102 square miles. The area of reserves under panchayat management is 71 square miles.

The dry forest consists of a deciduous irregular mixed growth. The more valuable species included in the crop are teak, *Terminalia tomentosa*, *Pterocarpus marsupium*, *Dalbergia latifolia*, *Anogeissus latifolia*, and *Hardwickia binata*.

Most of the accessible areas have been exploited heavily in the past. The foot hills at present for the most part contain trees fit only for fuel and small timber; and for these they are being worked. There are some small interior valleys which contain a better type of forest: timber trees of comparatively large dimensions are found. On the outer slopes the pole forests lend themselves to remunerative working.

Bamboos are found almost throughout the forest, and they form one of the chief sources of revenue.

2. *Subordinate, executive and protective staff.*—The division consists of 4 ranges and 37 beats. There are 17 foresters who assist in the protection of reserves, and the execution of works.

Some of them were placed in charge of more important sections (groups of beats) and others were in charge of special works. The names of ranges and the number of beats in each are given below:—

Name of range.	Number of beats.
Chelama	9
Gundlakamma	6
Giddalore	12
Sirvel	10
Total ...	37

3. *Cost of administration.*—The cost of administration (establishment charges including contingencies) was Rs. 69,336, 80 per cent of the total expenditure in the division.

4. *Cost under other important heads.*—The total expenditure under 'B. Conservancy and Works' including '52-A. Capital' has been Rs. 18,360, of which Rs. 814 was spent on roads, and Rs. 3,229 on buildiugs and wells, and the Chenchu Officer's works. Of the remaining expenditure Rs. 6,832 represents the cost of departmental timber operations and Rs. 758 spent on regeneration, fire-protection, etc., Rs. 12 spent under drift and waif wood and confiscated produce, and Rs. 6,605 spent under the head 'Timber and other produce removed from forests by consumers and purchasers'.

5. *Income from main sources.*—The chief item of revenue was from timber and fuel which together have contributed 39 per cent of the gross

receipts of the year. Bamboo, the next important source, gave 24 per cent of the revenue, while grazing gave 18 per cent. Miscellaneous items of revenue yielded 14 per cent. Minor forest produce was a small figure, as shown below:—

	Rs.
Timber and fuel	35,163
Bamboos	33,540
Grazing	23,268
Minor forest produce	6,708

6. *Chief works in the division.*—The most important works in the division relate to departmental extractions of big timber and to the leasing of timber cum fuel, fuel and bamboo coupes of the year.

During the year a quantity of 36,000 cubic feet of comparatively big timber was extracted departmentally for sale; while a quantity of 120,000 cubic feet of small timber was extracted by forest lessees. As regards fuel, all fellings were through lessees and the aggregate quantity extracted was 466,000 cubic feet.

7. The net financial results of the division are analysed below:—

	Rs.
Revenue	1,38,501
Expenditure	87,202
Net profit ...	51,299

Kurnool West.

Description and area.—The area of reserves under departmental control in the division is 854 square miles. The Yerramalais are 300 square miles, and the rest of the 854 square miles are the western portion of the Nallamalais and their foot-hills. The area of reserves under panchayat management is 90 square miles.

The Yerramalais support an inferior type of very open deciduous mixed forest, in which Yepi (*Hardwickia binata*) predominates in most parts, often pure; whilst teak, *Anogeissus* and *Terminalia tomentosa* occur locally. But in nearly every case, the trees are stunted and malformed and nowhere are they fit for timber. Even the Yepi is only fit for fuel at present. The rainfall in this region is scanty and the soil generally of little depth.

The Nallamalai portion of the division, on the other hand, though also of a deciduous irregular mixed type, has rather better soil and certainly greater rainfall. The composition and condition of the forests is therefore better than in the Yerramalais. But, even here, areas fit for growing big timber are very local, for example, inner valleys and plateaus where remunerative timber felling is unfortunately not yet possible. The 'terrai' portions however contain areas where economic working of small timber and fuel is possible; and it is here that the most of the Chenchus live. Through their agency the departmental works are carried out. Bamboos are abundant generally, throughout the Nallamalais, and they give a steady revenue.

2. *Subordinate, executive and protective charges.*—The division consists of seven ranges, two in the Yerramalais, and five in the Nallamalais divided into 38 protective units (beats) in all. The name of ranges and the number of beats in each are as below:—

Name of range.	Number of beats
Kurnool	9
Dhone	7
Nandyal	4
Gundlabrahmeswaram	5
Bairluti	5
Sivapuram	6
Pecheruvu	2
Total ...	38

3. *Cost of administration.*—The cost of administration during the year (Establishment including contingencies) has been Rs. 85,944.

4. *Cost under other important heads.*—As stated last year the most important works, namely, fellings of timber, fuel and bamboos, were changed over from departmental working to contract working: the contractors employing Chenchu labour. This resulted in a large saving of expenditure under timber and fuel operations; and the realizations by leasing of coupes were gratifying. However, the contractors who embarked on this enterprise, which is now in the Kurnool West division, are reported to have burnt their fingers seriously owing to depression in the fuel and timber market.

On the annual maintenance of roads, buildings and other works an aggregate expenditure of Rs. 1,662 was incurred. Sowing and planting, fire-protection and maintenance of boundaries cost Rs. 3,445. The maintenance of two baggage elephants has cost Rs. 2,420 and the construction of new roads, buildings and wells cost Rs. 3,914. An important new road partly constructed during the year was the Adutla-Sudem road, which will make Gundlabrahmeswaram accessible from the Velgode side.

5. *Income from main sources.*—The chief items of revenue were small timber and fuel, 27 per cent of the gross revenue. Minor forest produce gave 25 per cent, grazing gave 20 per cent, and bamboos gave 12 per cent.

Details of revenue under each head are given below:—

	Rs.	
Timber	24,094	(Rs. 6,091 from unreserves)
Fuel	26,771	(Rs. 4,567 from unreserves)
Bamboos	22,700	
Minor forest produce ...	46,660	(Rs. 32,848 from unreserves)
Grazing	37,340	
Miscellaneous	24,249	
Total ...	1,81,814	

6. *Chief works done in the division.*—The chief works of the division consisted during the year of—

(1) Timber and fuel fellings; and bamboo and minor forest produce collection through the agency of lessees.

(2) The running of the Chenchu industrial schools and operations, in regard to Chenchu administration.

(3) Maintenance of roads and buildings.

(4) Regeneration operations on a large scale.

(5) Construction of a new road from Adutla to Sudem.

(6) Fire-protection by early burning.

Revision of working plans.—Mr. H. E. Brown, Assistant Working Plans Officer, prepared the working plan for the Nallamalais and finished his field work in December 1929. He was then retransferred to Ootacamund, to draft his working plan report under the direct supervision of the Working Plans Conservator.

Some of the prescriptions of the working plan were given effect in advance, during the year.

The Yerramalai Working Plan, under revision by Mr. Padshah, was received after the close of the year, and it is pending submission to the Chief Conservator.

7. The net financial results of the division are analysed below:—

	Rs.
Revenue	1,81,814
Expenditure	1,08,082
Net profit ...	73,732

NORTH CUDDAPAH.

Description and area.—The forest division is 790 square miles in area (752 being I class and 38 III class). It comprises the southern extremity of Nallamalais, parts of the Palkondas and Velikondas, with their foot-hills, and the Lankamalais.

The forests of this division likewise are deciduous, irregular and open, varying considerably in condition and density of growth The foot-hills and the outer slopes are fuel forests. The inner slopes and plateau contain inferior pole forests in which Red sanders predominate in the south, mixed with *Pterocarpus marsupium, Anogeissus latifolia* and *Terminalia tomentosa* which are the other valuable timber species of the district. The incidence of Red sanders decreases towards the north where its place as the main species is taken to some extent by *Pterocarpus marsupium.* In parts of the district '*Hardwickia binata*' occurs, often in pure patches, but it does not grow sound to large dimensions.

2. *Subordinate executive and protective charges.*—The forest division is divided into five ranges each in charge of a forest ranger and

each range is divided into a number of beats, as noted below, each in charge of a forest guard and a watcher:—

Name of range.	Number of beats.
Sidhout	6
Badvel	8
Porumamilla	10
Vonipenta	12
Vontimitta	10
Total ...	46

3. *Cost of administration.*—The Vernacular Training School instructors and students were attached to this division for 4½ months in the year in addition to the normal staff of this division. The cost of all establishment, including contingencies, was Rs. 59,660. Establishment alone cost—

	Rs.
District Forest Officer	10,966
Rangers	8,440
Subordinate staff	17,600
Clerical staff	8,824
Vernacular Training School	4,724
Total ...	50,554

4. *Cost under other important heads.*—The total expenditure incurred during the year on account of all the ordinary and capital works, debitable to 8 b. Conservancy and Works, and 52-A. Capital Outlay, was Rs. 15,497. In view of the fact that all the annual operations connected with the extraction of timber and other forest produce are carried out through contract agency, no expenditure was incurred on the exploitation of forest produce during the year. The following are the items of capital works undertaken:—

	Rs.
Construction of subordinates' quarters at Balayapalle ...	850
Construction of a dry earth latrine in District Forest Officer's quarters	249
Improvement to the motor garage attached to District Forest Officer's quarters	58
Installing a tube-well at Chinnaletipattibhavi	503

All other works carried out in the year were of a recurring nature such as maintenance of roads and buildings, cultural operations and fire-protection, etc.

5. *Income from main sources.*—The main source of income was small timber and fuel, which contributed together 42 per cent of the gross revenue. Grazing contributed about 32 per cent. Details of revenue from various items are given below:—

	Rs.	
Timber	4,647	(includes Rs. 423 relating to unreserves).
Fuel	31,603	(includes Rs. 989 relating to unreserves).
Bamboos	3,282	
Grazing	27,239	
Minor forest produce ...	9,973	(includes Rs. 5,204 relating to unreserves).
Miscellaneous ...	8,950	
Total ...	85,694	

6. *Chief works in the division.*—During the year 27,496 cubic feet of small timber and about 15,790 tons of fuel from 3,513 acres (exclusive of the yield from unreserves) were extracted through the agency of contractors. All bamboo blocks of the year were leased out. Grazing and penning were allowed, as usual, on permits issued at fixed rates.

7. The net financial results of the division are analysed below:—

	Rs.
Revenue	85,694
Expenditure	75,157
Net profit ...	10,537

Cuddapah South.

Description and area.—The total area of forests in the division is 689 square miles: 671 square miles are under the control of the Forest department, and the rest under panchayat management.

Forests in the South Cuddapah division are deciduous and irregular. Some evergreen scrub is also found, along stream banks. The division is composed mainly of the following hill ranges:—

(1) Seshachellams,
(2) Portion of Palkondas, and
(3) Portion of Veligondas and isolated reserves.

The Veligondas contain a little inferior Red sanders growth. Other timber species, such as *Anogeissus latifolia, Hardwickia binata*, the three Terminalia, etc., also occur in appreciable quantities. (All these species grow in both the Palkondas and the Seshachellams, but in the latter Red sanders is found in larger numbers.)

The Seshachellam forests can be divided into three distinct zones:—

(1) Plain or fuel forests;
(2) Hill forests—Red sanders zone up to 2,000 feet elevation.
(3) Area above 2,000 feet elevation.

The plain or fuel forests contain miscellaneous fuel species with a small proportion of stunted and deformed timber species.

The hill forests include the more important timber areas. These are situated on inner slopes and plateaus up to an elevation of 2,000 feet.

The timber species common to the division are—

(1) *Pterocarpus santalinus*

(2) *Anogeissus latifolia*

(3) *Chloroxylon swietenia*

(4) *Terminalia tomentosa*

(5) *Hardwickia binata*

(6) *Pterocarpus marsupium* and a few other species. The sparse crop on the heights above 2,000 feet elevation contains *Shorea tumbuggaia* and *Shorea talura*. Also *Eugenia* (*alternifolia* and, it is said, *Gordneri*), and *Buchanania*, wild date and cycads.

2. *Subordinate executive and protective charges.*—The whole division is divided into six ranges each in charge of a ranger, and each range is split up into beats as noted below, each in charge of a forester or a forest guard and watcher:—

Name of range.	Number of beats.
Cuddapah	8
Rajampet	9
Kodur	8
Balapalle	9
Chitvel	8
Sanipaya	10
Total ...	52

3. *Cost of administration.*—The cost of administration including contingencies was Rs. 69,060. Establishment cost alone was Rs. 66,303 as detailed below:—

	Rs.
(*a*) District Forest Officer	10,473
(*b*) Rangers	14,931
(*c*) Subordinate staff	* 30,194
(*d*) Clerical staff	10,705
Total ...	66,303

4. *Cost under other important heads.*—There were no expensive special works during the year. Range quarters were constructed at

* Of this Rs. 9,437-8-0 relates to pay of watchers debited to 8, b. Conservancy and Works.

Rajampet at a cost of Rs. 3,350 of which Rs. 1,900 has been spent during 1929–30, and Rs. 1,450 remains to be spent during 1930–31.

The remaining works were of a recurring nature, such as repairs to buildings and roads, fire-protection and other works of minor importance. A new item of expenditure during the year was the extraction of Red sanders posts, etc., under the selection system, in all the ranges at a cost of Rs. 462. There was a net profit of Rs. 1,800. The aggregate cost of expenditure under 8. b. Conservancy and Works and 52-A. Capital Outlay was Rs. 18,287.

5. *Income from main sources.*—The main sources of income were leases of timber and fuel coupes (under sanctioned working plans and under the proposed working plan under preparation), leases of bamboos and minor forest produce, grazing and penning of cattle in the reserves, and compounding fees collected in forest offences. Also the departmental extraction of Red sanders posts, etc., mentioned above. Rupees 1,151 was realized by the sale of sandalwood, and dead and dying Red sanders trees extracted from Kodur Red sanders plantation in Balapalle range. The total revenue realized from all sources was Rs. 1,57,542. Details of revenue under the various heads are given below:—

	Rs.	
(*a*) Sandalwood	615	
(*b*) Timber	2,200	from reserves.
	26,515	from reserves.
	418	from unreserves.
(*c*) Fuel	72,902	from reserves.
	300	from unreserves.
(*d*) Bamboos	8,301	
(*e*) Grazing	19,711	
(*f*) Minor Forest Produce ...	8,767	from reserves.
	6,138	from unreserves.
(*g*) Miscellaneous (including confiscations)	11,675	
Total ...	1,57,542	

6. *The chief works done in the division.*—The works carried out during the year were of a routine and recurring nature. The extraction of both major and minor produce was carried out, as usual through the agency of lessees under departmental supervision: excepting the extraction of timber by selection fellings. About 28,800 cubic feet of small timber and 31,300 tons of fuel from an area of 4,395 acres were placed on the market during the year 1929–30 as against 81,600 cubic feet of small timber and 25,000 tons of fuel from an area of 4,360 acres during 1928–29.

Grazing and penning were allowed, as usual, on permits issued at fixed rates as in the previous year. The preparation of a single working plan for all the reserves in the division referred to in the last year's

report has just been completed. All final points have been settled with the District Forest Officer and the plan will be submitted soon for sanction.

7. The net financial results of the division are analysed below:—

	Rs.
Revenue	1,57,542
Expenditure	77,923
Net profit ...	79,619

BELLARY,
5th September 1930.

A. A. F. MINCHIN,
Conservator of Forests, II Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1930.

THIRD (WORKING PLANS) CIRCLE.

CHAPTER I.—DETAILS OF WORK UNDERTAKEN IN CONNEXION WITH THE PREPARATION AND REVISION OF WORKING PLANS.

Revision of the working plan for the Sal forests of Ganjam division.—This working plan was not nearly completed by December 1929, as had been forecasted in last year's report. There was more field work to do than had been anticipated. All field work is now completed and the working plan report is being written up, and maps prepared. It is expected to be ready before the end of the present calendar year, possibly by the 31st of October.

Revision of the Mount Stuart Working Plan.—The staff under the Working Plans Officer completed 8,743 acres of stock-mapping and enumeration during 1929–30 as against (7,290 acres in 1928–29) bringing the total area enumerated and surveyed up to 19,925 acres. The better progress made in 1929–30 was due to the increase of staff in October 1929 when some men were transferred from the Logging Engineer's division on its abolition. The area remaining to be enumerated after the 31st March 1930 was 2,557 acres ; it is expected that the working plan will be ready by the end of November 1930. It will be a more expensive working plan than need have been the case had a bigger staff of subordinates been supplied earlier ; it is the pay of the superior officer in charge of the working plan that always accounts for the greater part of the cost.

2. *Working plan for the forests of South Mangalore.*—During the early part of the year, i.e., from March 1929 until the end of June, the working plan staff were almost exclusively engaged on the stock-mapping of reserves according to type and on an examination of Sampaji, Mujur and Shiradi centres as possible locations for a new sawmill setting for the Parappa sawmill. In the latter connexion, a representative enumeration of about 500 acres was made in Sampaji reserve during May and part of June 1929.

Thereafter, prolonged and heavy rains on the West Coast necessitated the suspension of field activities until the latter part of September.

During the year, about 50,000 acres were stock-mapped at a cost of approximately half a pie per acre.

Enumerations in selected timber blocks were begun; about 3,800 acres (in addition to the 500 acres in Sampaji reserved forest) were representatively covered at an average cost of 3 annas 10 pies per acre.

The percentage of enumeration varied from 18 per cent to 100 per cent.

Early this year it was decided to include in the activities of this working plan party the preparation of a working plan for the North Mangalore division; the plans for both divisions are expected to be ready by the end of the calendar year, or possibly early in the new year.

3. *Working plan for the Dhoni, Silent Valley and Attapadi Valley reserves of Palghat division.*—The Assistant Working Plans Officer, Mr. T. V. Venkateswara Ayyar, was engaged till the burst of the monsoon of 1929, in laying out felling series and selecting areas suitable for teak planting in Chenat Nair reserve. It was decided during the year to include in this working plan the area of the Attapadi Valley forests. The enumeration and stock-mapping of Thondakulam block was begun in November 1929 and completed by the end of March 1930. The Assistant Working Plans Officer's progress was impeded by the necessity for his undertaking on behalf of the district the marking for fellings in the current year's coupes. He is also short of subordinates, which naturally makes his work much slower. This will be remedied as soon as staff become available on the completion of the Mount Stuart and Mangalore Working Plans.

4. *Working plan for the Nallamalais forests of the West Kurnool division.*—This working plan has been completed and is being typed.

5. *Working plan for the Ghaut forests of the Wynaad division.*—For the preparation of a working plan for the ghaut forests of the Wynaad division, Mr. A. N. Sarma, Deputy Conservator of Forests, was posted to the III Circle, from 9th September 1929. An area of 105·94 square miles, for which the working plan is to be prepared, was inspected and a reconnaissance report submitted. This report has been considered, and orders passed, by the Chief Conservator of Forests.

By 31st March 1930, an area of 13,911·30 acres had been stock-mapped in detail. This working plan also has been delayed by lack of staff.

CHAPTER II.—SILVICULTURAL RESEARCH AND EXPERIMENTS.

6. Mr. A. M. C. Littlewood (Deputy Conservator of Forests) held charge of the office throughout the year except for a short period from 9th September to 10th November 1929 when Mr. M. V. Laurie, Working Plans Officer, Mount Stuart, was in charge.

7. Mr. Littlewood was on tour for 164 days in the year.

8. *Research work.*—The research work done by Mr. A. M. C. Littlewood, Forest Research Officer, and by Mr. B. S. Kesava Vittal, Assistant Working Plans Officer, Tinnevelly, on special duty in connexion with evergreen forests, has been fully dealt with in the annual report on Silviculture submitted previously. A brief resumé of the work done by the two officers is given below.

9. *Records.*—Continued to be maintained on the model obtaining at the Forest Research Institute, Dehra Dun. They were periodically inspected by the Conservator.

10. *Establishment.*—The executive staff was slightly strengthened during the year by the addition of 2 foresters and 3 temporary maistris. Including these it consisted of 2 rangers, 2 foresters, 1 guard and 3 maistris on Rs. 18 each. There was no change in the clerical staff of one clerk and one typist which has been found to be most inadequate in view of the increased work in all directions.

A great deal more than is being attempted could be accomplished if the Research Officer were given a gazetted assistant and more establishment. One of the resolutions passed at the Silvicultural Conference at Dehra Dun in March 1929, after due consideration, was that each Provincial Silviculturist should have a gazetted assistant.

11. *Brief resumé of work done by Mr. Littlewood, the Forest Research Officer, during the year* 1929-30.—The principal works undertaken during the year under report were—

(1) A study of the silviculture of teak in its relation to soil æration and root competition.

(2) Seed origin experiments with teak and rosewood seed from different sources.

(3) A study of the question of securing (in Nilambur) the most valuable second rotation crop in a partly failed and partly III quality locality not well suited to growing teak by ordinary methods.

(4) Experiments in growing teak in admixture with other species in disintegrated laterite.

(5) Experiments dealing with the question of the best way to deal with the strobilanthes problem in Karian shola.

(6) Pot culture experiments with the treatment of seed of several species in various ways.

(7) Nursery experiments with several deciduous and evergreen species in differently treated beds.

(8) Experiments in connexion with the improvement of poor coppice forest.

(9) Experiments with Acacia cyanophylla in the Chittoor district.

In addition to the above, observations were continued during the year in a number of old plots and minor experiments carried out with under-planting young teak and making preliminary studies of the silviculture of rosewood and vengai.

12. The detailed results secured by the above experiments are embodied in the Forest Research Officer's Annual Report for 1929–30 separately published. The following are a few brief remarks.

13. As regards (1) the results indicate that root competition plays an important part in the life of a young teak plantation in Nilambur ; that the competition in that locality commences about September and by removing or sufficiently reducing its effects, teak (in the first year of its life) *will continue to grow during the hot months* and thus develop beyond the influence of weeds, and will require no tending in the second year. The experiments also indicate that since the beneficial effects resulting from deep forking in August and September are no better than those derivable by mere mamooty scraping in those months, the work done by either method has been in the direction of removal of root competition rather than of soil æration. This is an important point because it is much cheaper to scrape than to dig up the soil with pronged forks.

14. With reference to (2) it must be mentioned that the pot culture experiments with seed from different localities have shown the importance of *locality* selection both for teak and rosewood. The plants raised in the nursery with seed from different sources have been put out into the forest in order to carry on the investigation beyond the nursery stage and it will be some years before definite results are secured.

15. In the third item, observations must continue for a further period before any definite statement can be made, but results so far point to stumps being the proper method to adopt when trying to raise teak in strongly laterite soils in Nilambur. Rosewood and *Ougenia dalbergioides* also promise well in such conditions.

16. The experiment with growing teak in admixture with other species (item 4) has shown the difficulty of raising such a plantation, firstly, because of unequal, and, in the case of some of the secondary species, very much delayed, germination, and secondly, because the teak has constantly to be guarded against the inroads of weeds from the lines in which other species have

been sown and for the benefit of which we cannot afford to do adequate weeding because of their lesser value. As regards this last point, rosewood is perhaps an exception, but for it we need to leave the weed to protect it to some extent from browsers. We should also not be justified in erecting an artificial fence because only half the crop would be rosewood.

17. The experiments to deal with strobilanthes in Karian shola have given more or less definite results in that regrowth after cutting the stuff close to ground level is very little indeed. The plots continue under observation with a view to watching further developments and a fresh series of plots has been opened out to study other questions connected with this pest.

18. Very interesting results have been secured with the treatment of several kinds of seed by different methods. The most refractory seeds have yielded to treatment with sulphuric acid and, although in a few cases comparative results show that much simpler measures were good enough, there were none in which sulphuric acid acted detrimentally.

19. Much was learnt from the nursery experiment referred to in item (7). Briefly, the conclusions drawn were that in the case of the evergreen and semi-evergreen species tried, if we wish to make nurseries outside evergreen jungle, we must use an antidote in the form of evergreen humus or cattle manure. It was also found that in every case burnt-over beds gave poorer results than unburnt beds for evergreens, but that the reverse was the case with deciduous species.

20. Items (8) and (9) might as well be considered together; the former dealt with several species in a coupe on the Mettupalaiyam slopes, the latter with only Acacia cyanophylla in the Chittoor district. Results at Mettupaliyam were quite successful but, as it was discovered that, in Chittoor, mound sowings did very much better than sowings in either patches or pits, more extensive work will be carried out in 1930-31 at Mettupalaiyam adopting all three styles.

21. *Brief resumé of silvicultural experimental work in the rain forests of Kannikatti in Tinnevelly district in* 1929-30—*Nursery work.*—During the year, both the open nurseries and the nurseries under cover of the natural shola forest were extended and fourteen new species, and one already tried, viz., *Aglaia roxburghiana*, experimented with.

Within a few days of dibbling *Mesua ferrea* in May in the covered nursery, and after excellent germination had started, some small animals (possibly rats or porcupines) began to eat the seed, both germinated and ungerminated. The destruction that was effected in only three or four days was remarkable. It was checked by putting up strong low fences round the beds. The attack began to extend to other species, *Balanocarpus*, etc., and

therefore all the beds were fenced, which had the desired effect. The attack in the open nursery was not appreciable but all the same it also was fenced.

Mesua has done well in both nurseries and there are now 25,000 seedlings in stock, enough to plant up the gaps, in a coupe ten times the size of the present one. Open nursery Mesua are taller, tougher and have more, but narrower and paler, leaves than those of the Shola nursery under cover. *Gluta travencorica*, *Aglaia Roxburghiana*, *Dichopsis elliptica* and *Balanocarpus utilis* gave very good germination, *Filicium decipiens*, and *Swietenia macrophylla* (Mahogany), fair, and *Chickrassia tabularis*, in the beds, poor ; while in baskets *Chickrasia* gave good results. *Cedrela Toona* (toon) and *Bischofia javanica* gave a very poor percentage of germination. *Calophyllum* (sp.), *Dipterocarpus Bourdilloni* and *Agathis australis* (the 'Kauri-pine') failed. 'Kauri', it is recorded, failed even in Australia when dibbled two months after collection. *Auracaria cunninghamii* (the hoop-pine), has given about 10 per cent germination and the seedlings are 3 inches high, with roots up to 10 inches. One bed was being attacked by some root grub and hence all the seedlings of that bed were transferred to baskets at once. There are about 800 seedlings of hoop-pine and they will be further experimented with. The object of experimenting with these exotics is to see if a first-class quick-growing coniferous soft-wood cannot be introduced in suitable areas in our rain forests. At present the results are not encouraging.

Hardwickia pinnata seed, put in running water at night in a bag, and exposed to the hot sun during day, for a fortnight, gave 12 per cent germination as against 2 to 5 per cent in the case of untreated seeds.

Pit heap germination gave excellent results, up to 80 per cent, in the case of *Mesua* and *Gluta*.

For a successful evergreen nursery, it has been concluded that the collection of ripe seed at the *correct* time is of the utmost importance, and constant supervision imperative, so that fencing, or other precautions, may be taken at the first sign of damage to the seeds or seedlings.

22. Experiments in the regeneration of gaps created in the coupe by selection fellings and regeneration experiments in the evergreen forest under normal conditions, were tried on a sufficiently extensive scale to give reliable results. *Acrocarpus fraxinifolius*, *Gluta Travancorica*, *Mesua ferrea*, *Balanocarpus utilis*, *Cedrela Toona*, *Swietenia macrophylla* and a variety of other species were tried both by dibbling, notching out germinating seedlings, and transplanting, with varied success. In many cases results have been excellent and rarely has complete failure been met with. In the case of dibbling *Gluta travancorica* often all the seeds put in a patch have come up. Seedlings are up to 1 foot in height and are vigorous. It is one

of the easiest species to raise by dibbling. Broadcasting also has given fair results.

The regeneration of gaps has not actually cost more than Re. 1 to the acre, there being two to three gaps per acre, but a good deal of the work was done by the special duty guards. A fair estimate for ordinary forest work would be Rs. 2 per acre.

From the above results it is seen that regenerating gaps by dibbling and planting does not appear either to be difficult or expensive.

23. *Natural regeneration plots—To study the effect of different degrees of opening of the canopy over regeneration.*—These were maintained. Heights will be recorded again this August.

24. *Flowering and seeding.*—Information regarding the time of flowering and the right time and method of collecting seeds has been collected in the case of fifty species.

25. *Experiments in germination with treated seeds.*—Germination tests were carried out with seeds, treated with strong sulphuric acid for 8 minutes and 20 minutes, with seeds boiled in water for 5 minutes, and with seeds soaked in cattle manure solution for 24 hours. The acid treatment for 8 minutes gave the best results; *Acrocarpus fraxinifolius* gave 30 per cent, *Chickrassia tabularis* 4 per cent and *Cassia Siamea* 96 per cent success with this method.

CHAPTER III.—ADMINISTRATION.

26. The following officers were in charge of the Circle during the year under report:—

Mr. A. A. F. Minchin from 1st April to 1st June 1929.

Mr. F. R. Madan from 2nd June to 8th September 1929.

Mr. W. G. Dyson from 9th September to 18th December 1929.

Mr. C. C. Wilson from 19th December 1929 to end of the year.

27. The following officers were attached to the Circle as Working Plan Officers, Assistant Working Plan Officers, and officers on special duty:—

Name of officer.	Period.
Working Plan Officers.	
Mr. M. V. Laurie, in charge of the Mount Stuart Working Plan division. Mr. M. K. Nayar, in charge of the Ganjam Working Plan division. Mr. P. W. Davis, in charge of the Mangalore Working Plan division. Mr. C. R. Ranganathan, in charge of the North Coimbatore Working Plan division.	Throughout the year.
Mr. A. N. Sarma, in charge of the Wynaad Ghaut Forests Working Plan division.	From 9th September to end of the year.

Name of officer.	Period.
Assistant Working Plan Officers.	
Mr. T. V. Venkateswara Ayyar in charge of the Palghat Working Plan division. Mr. H. E. Brown, in charge of the West Kurnool Working Plan division.	Throughout the year.
Officers on special duty.	
Mr. A. M. C. Littlewood, Deputy Conservator of Forests, in charge of the Forest Research office.	Throughout the year except for a short period from 9th September 1929 to 10th November 1929.
Mr. A. N. Sarma, Deputy Conservator of Forests.	From June 1929 to the end of August 1929.
Mr. B. S. Kesava Vittal, Extra Assistant Conservator of Forests in charge of Silvicultural Research into the regeneration of the rain forests and of exploitation work in the latter.	
Mr. M. H. Krishnaswami, Extra Assistant Conservator of Forests.	From 1st May 1929 to the end of the year attached to the Working Plan Officer, North Mangalore.

28. The Conservator visited all the localities where works were in progress. He also inspected the regeneration area near Fraserpet in Coorg and toured with the Conservator, Sixth Circle, in Mangalore when the preparation of working plans for the North and South Mangalore divisions were discussed.

Health.—The health of the establishment was on the whole satisfactory except in the Mount Stuart division, where, in spite of all precautions, the subordinates suffered from fever more than in the previous years. Tekkadi camp was especially bad as the type of the malaria there was of a particularly virulent type. This increased sickness was probably due to untimely rain and lack of rain.

ADMINISTRATION REPORT OF THE LOGGING ENGINEERING DIVISION FOR 1929-30.

Mr. J. K. Pearce was in charge of the Division from the commencement of the year till the afternoon of the 5th of September 1929, when he handed over charge to Mr. B. J. Singh, Deputy Conservator of Forests. The latter officer was in charge of the Division till its closure on the 18th of October 1929. Mr. Pearce was on special duty from 5th September 1929 to date of expiry of his contract and was engaged in writing up his report on the New Amarampalam project.

2. *Mount Stuart division.*—This has been dealt with in the Circle Administration Report.

3. *New Amarampalam project.*—The field work came to a close in April 1929, and the subordinates were relieved in the third week of April 1929 when they reported for duty at Ootacamund and Coimbatore respectively for office work during the monsoon. A party remained at Nilambur to run the Thallipuzha transit baseline between the Thallipuzha and Karimpuzha watersheds, and to re-run the tie-line from the end of the transit baseline over the ridge and down to the Karimpuzha O.P. baseline. This party finished the work and proceeded to Coimbatore on 18th May 1929 afternoon.

The monsoon office work started at Ootacamund and Coimbatore under the supervision of Messrs. B. J. Singh and Cariappa respectively. The main work taken in hand during the monsoon was mapping the areas topographically surveyed and compilation of the enumeration figures. This was completed and Mr. Pearce submitted his report on the New Amarampalam project from Madras.

The Completion Report of the New Amarampalam project enumeration survey works was submitted to the Accountant-General through the Chief Forest Engineer, and Government sanction obtained for the excess expenditure of Rs. 4,267-0-3 incurred in 1929-30. The total expenditure on the work was Rs. 24,267-0-3.

4. The Logging Engineering division was finally absorbed in the III (Working Plans) Circle on 18th October 1929, the majority of the subordinates being transferred to the III Circle at that time. A few were transferred to other circles.

5. The revenue and expenditure of the Logging Engineering division to the date of its closure are given below :—

Revenue.

viii. Forest Revenue.

Minor and detailed head.	Amount.
(*e*) *Miscellaneous*—	RS. A. P.
Fines and forfeitures	1 0 0
Rent of buildings	72 8 0
Other sources	255 9 0
Total ...	329 1 0

Expenditure.

8. (*b*) Conservancy and works.

Account heads.	Amount.
	RS. A. P.
Timber (expenditure of the Mount Stuart project) ...	635 11 0
Total ...	635 11 0

8. C. Establishments—iii. Exploitation.

Pay of officers—	
Non-voted	4,025 0 0
Voted	13,883 1 0
Pay of establishment—Voted—	
Permanent	9,948 8 0
Temporary	9,042 8 0
Travelling allowance—	
Non-voted	189 14 0
Voted	5,607 6 0
Fixed travelling allowance	2,368 3 0
Other compensatory	1,688 12 0
Contract contingencies	756 8 0
Rents	134 11 0
Apparatus and materials	5 4 0
Miscellaneous	3,734 6 0
Total ...	51,384 1 0

C. C. WILSON,
Conservator, III (Working Plans) Circle.

OOTACAMUND,

13*th September* 1930.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1930.

FOURTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

Reserved forests and reserved lands.—The total area of the reserved forests at the end of the year was 3,836 square miles against 3,856 square miles at its beginning, the difference being due to—

(*a*) disreservation of 10 acres in Basavapalli extension reserve in *Chittoor*;

(*b*) disreservation of 310 acres in Woddapatti reserve of *North Salem*, and 12,750 acres in Perumbalamalai reserve of *Central Salem* for assignment to the villagers affected by the Mettur project;

(*c*) disreservation of 107 acres along the southern part of the Godumalai reserve in *Central Salem* for the construction of the Salem-Attur-Vriddhachalam Railway;

(*d*) loss due to correct area furnished by the Director of Survey for Valkaradu reserve in *South Salem*—180 acres;

(*e*) resumption of area due to cancellation of disreservation notification of a portion of Vanavasi reserve in *South Salem*—6 acres;

(*f*) addition due to notification under section 16 of 325 acres of reserved land in *North Salem*, Aiyur extension II;

(*g*) resumption of Nagaramalai reserved forest—2 square miles—from Panchayat management which was under contemplation last year and given effect to this year from 17th August 1929.

2. FOREST SETTLEMENT.

2. An area of 325 acres of reserved land in *North Salem* was notified under section 16 of the Forest Act—Aiyur reserve extension II.

3. Demarcation.

3. Permanent demarcation of the disreserved coffee estates on the Shevaroys in *Central Salem* was carried out during the year to a distance of 9·06 miles at a cost of Rs. 256. In *Chittoor* division, Rs. 70-11-0 was spent for whitewashing cairns and Rs. 64-9-0 for demarcating forest buildings in all the ranges except Mamandur range with field demarcation stones. In *Vellore* division, Rs. 40 was spent on clearing the boundary line between Tiruppattur and Alangayam ranges to a distance of 8 miles and Rs. 48 on reclearing and maintaining top-lines of reserves between Singarapet and its extension to a distance of 4 miles. In *North Salem*, Rs. 315-10-0 was spent on clearing the district boundary line between North Arcot and Salem in Krishnagiri range and Rs. 19-8-0 on clearing of reserve boundary lines in Denkanikota East and West ranges. In *Central Salem* 390 miles of top boundaries of hill reserves were cleared at a cost of Rs. 908. Rupees 32-4-0 was spent in clearing the boundaries of Arana and Thirthagiri reserved lands. In *South Salem*, Rs. 31 was spent in reclearing 124 chains of common boundary between Valaiyur and Sengattur reserves on the Pachamalais and Rs. 2-8-0 in cutting 63 chains of line around the addition to the Bailnad proposed block for defining the boundary under section 4 notification.

The existing boundary lines of reserves were maintained by the protective staff. The top-lines in *South Salem* were maintained by the Malayalis under the reward system.

4. Forest Surveys.

4. (*a*) There was no survey by the Survey of India.

(*b*) The resurvey of the Omalur and Salem taluks by the Madras Survey Party No. III, under progress last year, is nearing completion. This resulted in the boundaries of reserved forests adjoining patta holdings being surveyed incidentally. In *South Salem* similarly, the same party completed the survey of portions of boundaries of reserved forests adjoining patta holdings during their resurvey of Rasipur and Namakkal taluks. The proof copy of the Namakkal taluk resurvey plan was received from the Director of Survey for verification, and it was returned with corrections and additions before final printing. The Perambalur taluk plan mentioned in the last year's report is still awaited from the Director of Survey. The Survey of Bailnad, Adukkam, Pudukombai and Perumalmalai reserved lands taken up by the same party in March 1929 is expected to be completed by the end of October 1930.

(*c*) The survey of coupes was as usual carried out departmentally.

(*d*) Reference maps were maintained in all the divisions.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of regular working-plans.

(*a*) Preparation.

5. The scheme sanctioned for the working of the forests in the Odugathur range of the old North Vellore division was taken up for revision by the Extra Assistant Conservator of Forests, Mr. A. R. Narasimha Ayyangar, for incorporation in the old South Vellore Working Plan, but, as he was transferred to Salem, the work was kept in abeyance pending the posting of another Extra Assistant Conservator to the division. In *North Salem*, the Extra Assistant Conservator, Mr. E. K. Krishnan, did some stock-mapping and collected statistics useful for the preparation of a consolidated working plan, and assisted the District Forest Officer in the preparation of a temporary scheme for the areas covered by the Hosur Working Plan. The preparation of the consolidated working plans for the *Central* and *South Salem* divisions referred to in the previous year's report were completed during the year. The plans are being revised in the light of instructions given by the Chief Conservator.

(*b*) Control.

The prescriptions of the working plans and schemes were generally adhered to, and the annual control returns were reviewed by both the territorial and Working Plans Conservators. Proper sanction has been obtained for deviations from the prescriptions of working plans.

2. Communications and Buildings.

(*a*) *Roads and bridges.*

Form 29 shows the number and capital value of roads and bridle-paths including culverts and buildings and wells in each division.

6. The total expenditure on new works and repairs during the year was Rs. 6,025 and Rs. 18,757 against Rs. 6,543 and Rs. 13,115 respectively in the previous year. The important new works undertaken during the year were—

Chittoor.—Construction of a road from Adungaldrug road to Peddur road.

Vellore.—Construction of a road from Vasanthapuram to meet the Andiappanur-Kambugudi road in the sixth mile and of a branch road from Paramanandal Inspection shed to Melpet bridle-path.

North Salem.—Improvements to the Anchetti-Anaibiddahalla road and to the Anaibiddahalla-Pennagaram road.

South Salem.—Extension of the Pudupatti-Pillayarcoil road to a distance of 6 furlongs and 7 chains.

(*b*) *Buildings.*

7. The expenditure during the year on new buildings and the maintenance of the existing ones (including the pay of watchers) during the year was Rs. 17,414 and Rs. 14,885 against Rs. 6,519 and Rs. 12,376 in the previous year. The important items of new works were—

Chittoor—

(1) Construction of a garage, stables and a latrine for the Range Officer's quarters at Mamandur.

(2) Improvements to the range clerk's quarters at Bhakarapet.

Vellore—

(1) Improvement to the subordinates' quarters at Thottalam.

(2) Improvement to the rest-house at Mel Arasampet.

(3) Constructing a shed over the weigh-bridge at Vellore sandal depot.

(4) Part-construction of rest-house and outhouses at Panangatteri.

(5) Constructing a shed over the weigh-bridge at Tiruppattur sandal depot.

(6) Part-construction of extension of sandalwood godown at Tiruppattur.

(7) Improvement to kitchen attached to Kambugudi rest-house.

(8) Construction of range clerk's quarters at Alangayam.

(9) Improvements to Range Officer's quarters at Alangayam (construction of combined stables and syce's quarters).

North Salem—

(1) Completion of Denkanikota West Range office building.

(2) Re-roofing the subordinates' quarters at Urigam.

(3) Completion of Geratti inspection shed.

Central Salem—

(1) Improvements to the Cauvery Peak rest-house.

(2) Construction of a front veranda to the Range Officer's quarters at Hasthampatti.

(3) Conversion of old Range office quarters at Danishpet into a rest-house.

(4) Conversion of old Range office at Danishpet into kitchen.

(5) Construction of a latrine to the Range Officer's quarters at Harur.

South Salem—

(1) Extension of the Turaiyur range office building by providing an additional room.

(2) Completion of the Namakkal Range office building.

(3) Conversion of one of the stables of the Tammampatti rest-house into a garage.

(4) Conversion of stables of the Pudupatti rest-house into a motor garage.

(*c*) *Miscellaneous.*

8. The cost of new works and repairs during the year was Rs. 4,353 and Rs. 417 against Rs. 3,554 and Rs. 807 respectively in the previous year. The chief new works undertaken were—

Chittoor—

(1) Construction of a well for the Nagapatla subordinates' quarters.

(2) Construction of a well for Bhakarapet Range Officer's quarters.

(3) Construction of a well for the Mamandur Range Officer's quarters.

(4) Sinking a trial shaft for Mittalam subordinates' quarters.

Vellore—

(1) Deepening the well at Banavaram.

(2) Further deepening the trial shaft for a well at Patrakad.

(3) Further deepening the trial shaft for a well at Kolathur.

North Salem.—Sinking a well in the rest-house compound at Denkanikota.

Central Salem.—Sinking two trial wells, one at Suriyakadai and another at Tholthukki.

The former was unsuccessful as solid rock was struck.

South Salem—

(1) Deepening the Pudupatti rest-house well.

(2) Deepening the Nagapalli kinar in Pudupatti reserved forest.

3. Protection of Forests.

(a) *General protection.*

9. The following statement shows the offences registered during the year as compared with the previous year.

Offences relating to reserves dealt with by Forest Officers.

	1929-30. Number.	1928-29. Number.
Injury to forests by fire	*167	236
Unauthorized fellings	*3,733	3,850
Unauthorized grazing	*963	1,136
Other offences	*224	236
Total ...	5,087	5,458

The decrease under fires was principally due to the hot weather not being so unfavourable, under grazing to the appointment of permit-issuing officers thus enabling villagers to buy permits in time, and under other offences to more vigilant protection.

10. *Sandalwood cases.*—One case of sandalwood theft from the Vellore depot by the depot watcher was detected by the police and the culprit was convicted to five months' rigorous imprisonment. In *Central Salem*, 5 sandalwood cases ended in conviction of the accused and confiscation of the seized produce. In *South Salem*, 17 sandalwood cases were detected, of which 13 cases were prosecuted, 3 cases were compounded and 1 case was withdrawn ; of the 13 sandalwood cases prosecuted, 2 cases ended in acquittal for want of conclusive evidence, 2 cases are pending trial and 9 cases ended in conviction.

The Chief Commercial Superintendent, South Indian Railway, and his staff co-operated in bringing to light cases of breach of sandalwood transit rules in the case of sandalwood transported by railways. Such cases were generally compounded, some for heavy sums, and in three cases the offenders preferred a trial in court where they were convicted and fined in sums not less than the compounding fees levied.

The active co-operation of the police was enlisted and all cases were registered under Indian Penal Code, section 379 or 411. The public also assisted to some extent. Liberal rewards depending on the circumstances of each case irrespective of the value of wood seized were granted.

* Decrease.

11. *Offences relating to unreserves dealt with by Revenue officials.*—These exclude offences relating to reserves under panchayat management.

	1929-30. Number.	1928-29. Number.
Injury to forests by fire	* 5	4
Unauthorized fellings	† 3,283	4,673
Unauthorized grazing	† 60	336
Other offences	† 126	130
Total ...	3,474	5,143

The decrease may be generally due to increased vigilance. But no convincing reason has been furnished by the Revenue officials for the variations.

12. *Cases relating to reserves brought to trial—*

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1928-29	723	470	253	35·00
1929-30	423	389	34	6·03

The percentage depends to a large extent on the magistrates who try the cases. The large variation is due to the fact that in *Chittoor* last year cases taken to court wherein the accused paid compounding fees and were acquitted in consequence thereof were taken as acquittals instead of as cases compounded.

13. *Cases relating to unreserves brought to trial—*

Year.	Number.	Convictions.	Acquittals.	Percentage of failure.
1928-29	298	245	53	17·78
1929-30	155	104	51	32·90

The number of cases settled by the payment of compounding fees in court and acquitted in consequence thereof is given below :—

	Reserves.	Unreserves.
Chittoor	136	Nil.
Vellore	565	Not known.‡
Salem North	72	...‡
Salem Central	532	122
Salem South	351	Not known.‡

* Increase. † Decrease.

‡ Figures in respect of unreserves in *Vellore*, *North* and *South Salem* are not available.

14. The percentage of offences personally enquired into by the District Forest Officers and their rangers is given below :—

	District Forest Officers.	Range Officers.
	PERCENTAGE.	PERCENTAGE.
Chittoor	0·83	6
Vellore	Nil.	4
Salem North	1	11
Salem Central	·375	4·93
Salem South	0·1	5

The percentage of offences personally enquired into by the Extra Assistant Conservator at Tiruppattur who conducts all offence work in the division was 3. This accounts for the 'Nil' entry against *Vellore*.

The amount of compounding fees realized during the year was Rs. 50,725 against Rs. 44,625 during the previous year.

The instructions issued in G.O. No. 990, Revenue, dated 13th June 1910, were generally followed in fixing the compounding fees.

15. *Patrol system.*—The patrol system was not in force in this Circle during the year. In *Vellore*, the Range Officers were directed to make surprise inspections for effective protection. In the *three Salem* divisions, special patrols were occasionally organized and inspections were made without previous warning. This has to some extent resulted in the detection of goat browsing cases in the *South Salem* division and in restricting illicit removal in all the three divisions.

16. *Rewards.*—In *Vellore*, rewards amounting to Rs. 51-8-0 were paid to forest subordinates for the detection of goat browsing cases. In *Central Salem*, rewards of Rs. 20 each were paid to the Prosecuting Sub-Inspector, Salem, and to the Sub-Inspector, Talavasal, as a recognition of the good services rendered by them in successfully conducting a sandalwood case. The subordinates concerned were also paid rewards to the extent of Rs. 35. Another reward of Rs. 31 was paid to the subordinates of Shevaroys South range for the detection of sandalwood cases. In *South Salem*, rewards amounting to Rs. 186 were disbursed during the year to railway officials, police officials, forest subordinates and private informants for their aid in the detection of two important sandalwood cases.

(*b*) *Protection from fire.*

17. The total area attempted to be protected from fire during the calendar year 1929 was 2,841 square miles, of which 2,765 square miles were successfully protected at a cost of Rs. 6,529.

Special protection.—The area under special protection was 1,082 square miles as compared with 1,087 square miles in the previous year. An area of 1,055 square miles was successfully fire protected during the year against 1,064 square miles in the previous year, the percentage of failure being 2·49 against 2·12 in the previous year. The variation is small.

General protection.—The area under general protection was 1,759 square miles against 1,773 square miles in the previous year, the percentage of failure being 2·83 against 3·67 in the previous year. The decrease was in *Vellore* and *Central Salem* and was due to vigilant protection by the forest subordinates in both the divisions and to the effective protection of blocks by the Malayalis under the forest village system in the *Vellore* division.

Early burning.—This system was not employed in this Circle.

(*c*) *Protection from cattle.*

18. The total area closed to grazing was 194 square miles out of 2,856 square miles of reserved forests and reserved lands. The area opened to grazing to all animals except goats was 2,662 square miles. The number of cattle impounded during the year was 12,069 against 13,592 in the previous year. The decrease was in *Vellore* and *Central Salem* divisions.

(*d*) *Protection against injuries from natural causes.*

19. *Lantana.*—In *Vellore*, eradication of Lantana by cultivation was tried in Kuttathur of Chengam range but the ryots were unwilling to take it up. In *North Salem*, clearing of Lantana was done in all the sandalwood coupes in connexion with the process of enumeration and extraction. A sum of Rs. 221 was spent on the clearing of Lantana for spike operations and Rs. 19 in connexion with the sowing of sandal seeds in reserved forests. In *South Salem*, the growth of Lantana along the boundary line of certain reserves was cleared by the Malayalis under the fire reward system.

Creeper cutting.—This was done in all sandalwood areas prescribed for the year and in timber coupes in *Chittoor* and *Vellore* divisions according to prescriptions of the working plan.

Prickly-pear.—The eradication of this pest by the introduction of Cochineal insects obtained from Mysore State has been started.

Spike.—This is dealt with under Research and Experiments.

CHAPTER III.—SILVICULTURE.

SECTION 1.—FORMATION AND REGENERATION OF FORESTS.

(i) *General progress of areas under regeneration.*

20. Natural reproduction of sandal was good in Panapakkam extension reserved forest and in the topes and reserves of Palmaner range. It was not satisfactory in Gudiyattam range. Natural reproduction of *Acacia Sundra, Albizzia amara, Hardwickia binata and Azadirachta indica* was good in Chendragiri range and that of Red sanders was good in the topes in Palmaner range, and fair in Chamala and Mamandur ranges. Natural reproduction from valuable species was not satisfactory in Gudiyattam range. Most of the coupes are badly invaded by prickly-pear.

Vellore.—Natural reproduction of sandal was on the whole fairly satisfactory on the Javadis. Natural reproduction of sandal in areas covered by thick growth of *Lantana* was poor but where *Lantana* is not dense there is good regeneration. In the Yelagiris, natural reproduction of sandal was not so good except in specially favoured localities. Natural reproduction of *Chloroxylon Swietenia, Albizzia amara* and *Acacia Sundra* was satisfactory. Reproduction of *Dendrocalamus strictus* and *Bambusa arundinacea* was not good this year.

North Salem.—Natural reproduction of sandal was good in Noganur and Sanamavu reserved forests of Denkanikota West range, in Gulhatti and Aiyur reserved forests of Denkanikota East range, and all over Dharmapuri range. It was fairly satisfactory in Denkanikota West and Anchetti ranges, but poor in Denkanikota East and Krishnagiri ranges. In Denkanikota West range, fire damaged the young sandal reproduction especially in Thalli and Hulibanda reserved forests.

The natural reproduction of *Hardwickia binata, Chloroxylon Swietenia* and *Albizzia amara* was poor in Denkanikota East range, but satisfactory in Denkanikota West range. Natural reproduction of *Hardwickia binata* and *Chloroxylon Swietenia* was fair in Anchetti range. In Dharmapuri range the reproduction of *Schleichera trijuga* was good in Guttiroyan reserved forest, and *Hardwickia binata* and *Melia indica* reproduced well both in the Woddapatti and Guttiroyan reserved forests. In Krishnagiri range, natural germination of *Albizzia amara* and *Choloroxylon* was fair while that of other species was poor.

Central Salem.—Reproduction continued to be generally fair in the areas under regular working plans.

Natural reproduction of *Hardwickia binata* was good in the Cauvery and Harur ranges. In fuel coupes, the coppice regrowth was generally fairly satisfactory. That of sandal was good throughout the division. Sandal is spreading naturally to a very promising extent in the forests at the foot of the Shevaroys and the Chitteris, particularly in the Kurumbapatti, Kapputhu and Ammapalayam reserved forests, though the elevation of these areas is only between 800 feet and 1,200 feet above the sea-level. It remains to be seen whether it will produce heartwood.

South Salem.—Natural reproduction of sandal by root-suckers was noticeable in the sandal areas of Manmalai and T. and V. Kanapadi reserved forests of the Pachamalais. Natural reproduction of sandal was good in the upper portions of Belur, Veppadi and Nagur reserves and throughout the plateaux of the Kollimalais and Bodamalais. Natural seedlings of *Pterocarpus Marsupium* were noticed in the higher slopes of Shelur reserve. Reproduction of *Dalbergia latifolia* and *Anogeissus latifolia* was fair in Belur, Veppadi and Vedambiyam and Atur-Manmalai reserves. In Tammampatti range, there were a few seedlings of *Pterocarpus Marsupium* and *Dalbergia latifolia* scattered here and there. In the Musiri-Pachamalais and in Rasipur range, the natural reproduction of timber species was disappointing.

(ii) *Establishment of reproduction under working plans or schemes (Form 34-A).*

(*a*) Mainly natural.

21. Areas covered by the working plan were worked under the simple coppice system. Reproduction from coppice shoots in all felled fuel coupes was generally satisfactory except in the Musalimadugu felling series of *Chittoor* division, and the Bhakarapet series in Chamala range, and in the worked coupes of Rasipur range in *South Salem* division. In such case it is proposed to replace the simple coppice system by coppice with standards except in very degraded areas which will be given complete rest.

(*b*) Mainly artificial.

22. *Chittoor.*—Sandal seeds were dibbled in the sandal propagation plots of the Sandal Regeneration Working Circle and also in 1-acre plots in the felled coupes of all the ranges. The results were satisfactory except in Gudiyattam range. Red sanders seeds were sown in 18 plots in felled coupes of Mamandur East and West Fuel Felling Series in the month of June, but the result was not altogether satisfactory. Red sanders regeneration operations were

carried out in the compartments of the year of the Timber Regeneration Working Circle. About 10 per cent of the seed sown germinated. *Acacia Suma* seeds were sown in the felled coupes of all the ranges from May to July. *Acacia Suma* is no good either as timber or fuel but it was intended to introduce it as a good host for sandal in fuel areas. Now that it has been decided not to continue sandal sowings in fuel coupes, there is no need to introduce this species in fuel areas. Two ounces of Sissoo (*Dalbergia Sissoo*) seeds were sown in the Kalyani river bed in Chamala range in June 1929 ; but only six seedlings came up. Sowings of Sissoo seeds along the stream bank in coupe I of 1928–29 resulted in producing a dozen plants. At the close of the year they were still under 6 inches high. They may or may not become established.

Vellore.—Regeneration by dibbling sandal seeds in blank areas in sandal coupes and in special tending areas was generally unsatisfactory as most of the seedlings that came up quickly after the rains died during the succeeding hot weather.

North Salem.—Regeneration operations prescribed in the working plan were suspended, but sowings on a small scale were carried out in plots. The result of the sowings was fairly satisfactory in Denkanikota East, Anchetti and Dharmapuri ranges, but the seedlings are not yet established.

Central Salem.—Sandal propagation was carried out by dibbling seed in 2-acre plots in Sanniyasimalai reserved forest and in 1-acre plots elsewhere. The results in Sanniyasimalai were good, but the seedlings are not yet established.

South Salem.—In the Pachamalais, seeds of *Albizzia Lebbek*, *Albizzia amara* and *Acacia leucophloea* were sown in Palamalai and Sengattupatti reserved forests. Seeds of *Albizzia Lebbek* in Palamalai and those of *Albizzia amara* in Sengattupatti germinated successfully, but some of the seedlings died during the hot weather. *Anogeissus latifolia* seeds were sown in Attur-Manmalai reserved forest but there was no germination. Sandal seeds were sown in 1-acre plots in all the ranges. The result was a failure in Rasipur range, but it was fairly satisfactory in the other three ranges. Dibbling sandal by itself has never been a really satisfactory method ; seedlings germinate, in some cases profusely, but they rarely survive the second hot weather. The method employed in connexion with spike investigation work will be adopted in future, namely, transplanting seedlings from dumps together with hosts a little older than the sandal. These hosts are killed by the sandal but they act as nurses and give the sandal time to form root connexions with mature hosts.

As regards the re-stocking of fuel coupes, the method of sowing on burnt patches of debris will be tried. Cuttings are being tried

also. The treatment of seeds with sulphuric acid seems to give good results, and will be adopted next year.

(*c*) Afforestation.

23. Nil.

(iii) *Plantation and other forms of regeneration not under working plans or schemes* (*Form* 34-*B*).

24. *Vellore.*—No fresh areas were taken up during the year. A sum of Rs. 12-8-0 was spent in pruning branches of trees in the Amerdi plantation.

Central Salem.—Artifiicial regeneration was carried on in the Kurumbapatti palmyra tope and the undergrowth in coupe III of 31 acres was cleared during the year for dibbling palmyra seeds in the area. A fairly extensive natural reproduction was revealed after clearing the undergrowth.

(iv) *Tending.*

25. General tending was done in all sandal coupes of the year in all the divisions and also in some of the previous year's coupes in *South Salem* division. The tending consisted of freeing the crowns of sandal by cutting creepers and overhanging branches of other trees interfering with them. This operation considerably improved the condition of sandalwood trees in *Central* and *South Salem* divisions. Tending was done along with enumeration in *Vellore* and *South Salem* divisions. In addition to tending of sandal, climbers on other species were cut in compartments I and II of each of the timber regeneration series of Mamandur range, *Chittoor* division.

(v) *General.*

26. *Vellore.*—Measurements of height and girth of trees in sample plots of Alangayam, Chengam and Tiruppattur ranges were recorded during the year.

SECTION 2.—TENDING OF THE GROWING STOCK.

27. *Vellore.*—Special tending operations were carried out in *Vellore* in the special tending areas according to the prescriptions of the working plan. Such areas were reduced in size from 30 acres to 10 acres as directed in Chief Conservator's Reference No. 9151C-2 of 1929-I., dated 10th December 1929.

CHAPTER IV.—EXPLOITATION.

(*a*) System of Management.

28. The total area under working plans and schemes during the year was 2,566 square miles and the various silvicultural systems in force are detailed below:—

	Area in square miles.	Percentage to the total area under working plan.
Selection method	314	12·24
Simple coppice	712	27·75
Coppice with standards	39	1·52
Method of improvement fellings ...	704	27·43
Unworked or worked with no system ...	797	31·06
Total area under working plans ...	2,566	100·00

The following statement shows the areas exploited during the year under the various silvicultural systems in each division:—

Division.	Timber clear-felling.	Coppice with standards.	Simple coppice.	Selection fellings.	Improvement. fellings.	Total.
		ACS.	ACS.	ACS.	ACS.	ACS.
Chittoor	..	203	1,274	48,459	13	49,949
Vellore	..	640	1,760	129,920	20,691	153,011
South Salem	..	..	355	3,443	20,582	24,380
Central Salem	..	..	2,527	511	64,957	67,995
North Salem	..	..	745	..	43,357	44,102
Total ..	..	843	6,661	182,333	149,600	339,437

(*b*) Exploitation by Departmental Agency.

29. The chief product extracted and sold departmentally was sandalwood. A total quantity of 402 tons was sold and fetched Rs. 5,66,727. The sales took place as usual at Tiruppattur and Vellore, the quantity sold at the respective places being 296¾ tons and 105¼ tons. The quantity sold at Tiruppattur includes 64 tons, 65 quarters of green wood for which Rs. 98,969 was realized at Rs. 1,527 per ton. The rates realized for dead wood at Vellore and Tiruppattur depots were Rs. 1,358 and Rs. 1,400 per ton against Rs. 1,446 and Rs. 1,492 realized last year. The fall in price is due to general trade depression. The sale was attended for the first time by the Chief Conservator at the Tiruppattur depot. This was the first time that green wood was sold. It fetched Rs. 120 more per ton than dead wood. It is said by the

merchants to contain more oil. Green trees of and over 36 inches in girth standing on patta and *sivai-jama* lands were ordered to be extracted as lands cleared and brought under cultivation are devoid of host trees and sandal trees there are not expected to put on any appreciable increase in heartwood.

Timber.—1,999·327 cubic feet of timber were extracted in *Chittoor*; of this quantity 92·66 cubic feet of timber were used for departmental works and the remainder except 76·3 cubic feet pending disposal at the end of the year was sold in auction. In *Vellore*, 1,548 cubic feet was extracted during the year in addition to the quantity extracted last year, viz., 796 cubic feet. Of this quantity, 1,115 cubic feet was disposed of, leaving a closing balance of 1,229 cubic feet which was intended mainly for building purposes. In *North Salem*, 1,041 cubic feet of small timber of different species was collected for fencing the spiked experimental plots. Of the 600·35 cubic feet of *Hardwickia binata* timber which was in stock at the end of last year in the Dharmapuri range. 59·90 cubic feet was sold to the public in auction. In consultation with the Forest Utilization Officer, it has been arranged to supply 400 broad gauge sleepers to the Madras and Southern Mahratta and South Indian Railways for a sleeper test. Two turnery billets of *Hardwickia binata* were prepared and sent to an English Expert in Burma for test at the instance of the Forest Utilization Officer. Besides this, three turnery billets of *Hardwickia binata*, 14 inches long and 10 inches in diameter, were prepared for despatch to the Director of Forest Products Laboratory in England for experimental purposes. In *Central Salem*, 12 Vanni logs (52 cubic feet) were extracted and supplied to the Industrial Engineer, Madras, at Rs. 1-8-0 per cubic foot, and 320 cubic feet of timber (palmyra rafters) was extracted and used for the depot buildings. In *South Salem*, the departmental extraction of timber on an experimental scale was continued in Namakkal range to test the market for cart materials, the operations having commenced in 1927. Previous experience showed that the demand for materials converted was uncertain and much of the stock remained unsold. There appeared to be some demand for cart materials, which were therefore prepared during the year. One thousand two hundred and seventy-five cubic feet of timber was extracted during the year in addition to the opening balance of 411 cubic feet. Of this quantity, 478 cubic feet was sold during the year, 18 cubic feet utilized for departmental works and the remainder is in stock.

Fuel—Indicator areas.—District Forest Officers have not reported on the accuracy of the figures recorded by contractors or of the results of checks imposed on them by the indicator areas. They will be requested to record the information in future. The following information was however obtained from them.

Chittoor.—The yield as estimated by the working of indicator areas and that given by the contractors have been compared. The contractors' figures are 224,000 cubic feet in excess of the estimated yield. The stacking of fuel by contractors leaves much to be desired and gives an exaggerated yield in stacked cubic feet. In many cases the fuel is converted into charcoal and the quantity so converted is estimated. Hence the difference between the contractors' figures and the indicator area estimates.

Vellore.—The fuel obtained from the indicator area is stacked as 81 cubic feet and this is taken as equivalent to one ton, but the figures furnished by contractors are calculated on cart-loads, one cart-load being taken as equivalent to half a ton. The contractors furnish the yield in cart-loads, and the check exercised is to see that contractors always issue permits for every cart-load removed so that the number of cart-loads given by the contractor can be taken as correct; but the outturn as given by the contractors does not bear any comparison with the outturn obtained from the figures of the indicator areas as seen in the statement appended.

Serial number.	Name of coupe.	Area in acres.	Number of tons as reported by contractors.	Number of tons as worked only by indicator area.	Excess.	Deficit.
1	Thellai coupe	86	417	229	..	188
2	Naickaneri	117	386	592	206	..
3	Pallipattu	68	360	189	..	171
4	Komiyar	78	265	780	515	..

North Salem.—The fuel coupes in all ranges except Krishnagiri are very small and fetch low prices, and consequently indicator areas in these ranges were considered by the District Forest Officer to be unnecessary. The District Forest Officer will be instructed to work indicator areas in future. In Krishnagiri range, indicator areas were cut free of cost in 1928-29 and the results obtained are given below:—

	(Bags of charcoal of 56 lb. each.) Per acre.
Nandibanda coupe V	56
Maharajagadai coupes I and II	25
Bargur coupe V	80
Kothur coupe III	28
Nandibanda coupe V	96

The yield from these areas was not compared with the accounts rendered by the contractors. No indicator areas were worked in

the 1929–30 even in this range, the explanation being that the growth in the coupes was identically the same as that in the coupes of 1928-29.

Central Salem.—The system of finding out the outturn and market value for fuel coupes was based on the outturn obtained in the indicator areas of last year, as the fuel coupes worked were those adjoining coupes of the previous year and hence no check was made this year. The District Forest Officer will be instructed to work indicator areas in future.

South Salem.—A comparison of the contractors' fuel outturn with that of the indicator areas is given below :—

Name of coupe.	Average yield per acre of	
	Indicator area.	Contractors' area.
	C.FT.	C.FT.
Badamalai coupe XX ...	720	196
Thirumanur coupe XVII-B.	770	227
Pudupattai coupes XXIII and XXIV.	...	200
Karavalli coupe XVII ...	1,455	185–Steep slope.
Mavar coupe XII	700	103
Gangavalli coupe VIII ...	710	412

Chittoor.—Eleven lakhs sixty-six thousand one hundred and fifty cubic feet were collected departmentally during the year. Of this quantity 9,950·47 cubic feet were sold in auction, 1,140 cubic feet were handed over to contractors, being the produce obtained in working the indicator areas, and the remaining quantity was pending disposal at the close of the year.

Vellore.—Forty-seven thousand cubic feet of fuel was obtained from 129 acres of indicator areas, of which 43,000 cubic feet remained to be sold at the end of the year. In *North* and *Central Salem*, no fuel was collected departmentally during the year. In *South Salem* seven fuel coupes were surveyed to an aggregate area of 414 acres, of which 15 acres were felled as indicator areas. The yield varied from 630 to 700 cubic feet per acre on different fuel coupes and the whole stock has been sold to the fuel coupe contractors, the price being fixed at the coupe sale rates, *plus* the cost of felling, billetting and stacking.

Bamboos.—Thirty bamboos in *Chittoor* and 428 in *North Salem* were collected for departmental works.

Minor forest produce.—Seeds of timber species including sandalwood were collected in all divisions for cultural operations and for supply to other divisions. In *Vellore*, 399 quarters of Divi divi pods including the quantity collected last year was sold for Rs. 205.

(c) EXPLOITATION BY PURCHASERS.

30. The fuel and bamboo coupes and minor forest produce farms were as usual sold to contractors in all the divisions. Timber trees in Kottur Timber Improvement coupes in the *Vellore* division, and in Kottapatti and Pannikaradu reserved forest in *Central Salem* division were sold standing.

The following statement shows the quantity of major produce and the value of minor produce removed by all agencies during the year and in the previous year :—

Year.	Timber in thousands of cubic feet.	Fuel in thousands of cubic feet.	Bamboos.	Grass and grazing.	Other minor forest produce.
RESERVES.			RS.	RS.	RS.
1928-29	52	1,515	1,41,021	2,05,460	78,334
1929-30	40	1,794	1,46,873	1,99,220	69,994
UNRESERVES.					
1928-29	608	462	6	..	91,910
1929-30	614	498	311	..	96,377

The variations are explained in Chapter V.

Form 35 shows the quantities of timber exploited during the year. The statement appended shows districtwar the gross yield of timber, the quantities of logs and poles (timber in the rough), the quantity of timber from which dressed logs were obtained and the quantity from which sawn timber was obtained during the year :—

Districts.	Gross yield (in thousands of cubic feet).	Quantities of logs and poles (timber in the rough) (in thousands of cubic feet).	Quantities of logs from which sawn timber was obtained (in thousands of cubic feet).	Quantities of logs from which dressed logs were obtained (in thousands of cubic feet).
Chittoor	2	..	..	2
Vellore	2	2	..	..
North Salem	1	..	1	..
Central Salem	1	1	..	..
South Salem	2	1	1	..
Total ..	8	4	2	2

31. *Grazing.*—Of the total area of reserved forests and reserved lands 93·20 per cent was opened to grazing against 92·31

per cent in the previous year. The incidence of grazing in the several districts of the Circle is given below:—

Districts.	Area in acres.	Cow-unit.	Number of acres per cow-unit.
Chittoor	294,400	63,078	4·51
Vellore	426,240	122,693	3·47
North Salem	358,400	68,610	5·22
Central Salem	445,440	130,331	3·42
South Salem	179,200	43,754	4·10
Total ..	1,703,680	428,466	3·98

There was a decrease in the number of cattle grazed during the year as compared with the previous year in all the divisions except *Chittoor*, said to be due to cattle mortality. The number of acres per cow-unit available during the year was 3·98 against 3·89 in the previous year.

(*d*) Exploitation by Right and Privilege Holders.

The following statement shows details of free grants utilized by right-holders and free grantees:—

—	Timber in thousands of cubic feet.	Value.	Fuel.		Bamboos value.	Grazing value.	Other minor forest produce.	Total.
			In thousands of cubic feet.	Value.				
		Rs.			Rs.	Rs.	Rs.	Rs.
Right-holders ..	..	..	..	..	..	132	..	132
Free grantees ..	24	6,106	..	..	359	..	242	6,707

32. In *Vellore*, the system of grazing of cattle by the Malayalis under the forest village system at 3 annas per cow-unit and the distribution of separate rewards to them for successful protection of reserves against fire continued during the year. In *Central Salem*, the system was grazing of cattle by the Malayalis in Chitteris and Salem-Kalroyans on the initial deposit of 2 annas per cow-unit and distribution of fire rewards for successful protection. The number of cattle licensed was 5,554 on the Chitteris and 5,045 in the Salem-Kalroyans respectively.

The proposals for revising the assessment for the Salem-Kalroyans based on the census of cattle taken during 1926 are still pending the sanction of the Chief Conservator. The assessment for Chitteris which is revised with reference to the cattle census for 1927-28, is also awaiting his orders. In *South Salem*, the concession of free grazing granted at the time of forest settlement of the Gundur and Ariyur shola reserved forests in Namakkal range and the Kanapadi extension reserved forest in Turaiyur range was not utilized by the Malayalis in spite of the notice published in the District Gazette. The reason for their failure to make use of the concessions is reported to be their unwillingness to take responsibility for the protection of reserves. They prefer to purchase permits for their own cattle and also for plains cattle left in their charge by the plainsmen for breeding purposes. The Malayalis in Palamalai extension reserved forest in the Turaiyur range, however, availed themselves of the concession and free permits for 235 cow-units were issued to them.

The Hill Village scheme for the Bodamalais still awaits the sanction of the Chief Conservator.

(*e*) Exploitation by Free Grantees.

33. *Chittoor.*—2,531·07 cubic feet of timber, 23,990 bamboos and 313 (6,260 cubic feet) palmyra trees were granted for reconstruction of houses burnt by accidental fires and 29,180 cubic feet of metal and gravel were removed by the Public Works Department and local fund contractors for Government and local fund works and also by the public on payment of the seigniorage fees.

Vellore.—Free grants were made mainly from unreserves. But a quantity of 467 cubic feet of timber worth Rs. 58-6-0 and 3,849 bamboos worth Rs. 116-4-0 were allowed to be removed from the reserved forests, as these were not available in unreserves. Free removal of thatch grass also was allowed. Including removals from the reserved forests, the aggregate value of produce removed by free grantees amounted to Rs. 2,490 against Rs. 3,696 in the previous year.

North Salem.—Free grants were made chiefly from unreserves for rebuilding houses destroyed by fire, but only 40 cubic feet of timber was removed during the year by the grantees.

Central Salem.—Three thousand nine hundred cubic feet of timber were removed by free grantees, the value of the produce being Rs. 674. The free grants were all made by Revenue department from unreserves for the rebuilding of houses destroyed by fire.

South Salem.—Free grants were made from reserves and unreserves for rebuilding houses destroyed by fire. Details of free grants made in this division are given below :—

	C. FT.	Value. RS.
Timber in thousands of cubic feet	5	1,569
Bamboos (number)	99	15
Minor forest produce (thatch grass)		101
Total value ...		1,685

CHAPTER V.—FINANCIAL RESULTS.

34. The statement below shows the financial position of the year under report compared with that of the previous year :—

Receipts.

	1929-30. RS.	1928-29. RS.
Revenue	*13,73,375	12,89,534
Refunds	10,372	12,666
Net ...	13,63,003	12,76,868

Expenditure.

	1929-30. RS.	1928-29. RS.
52-A. Capital	31,566	18,054
B. Conservancy and works ...	1,35,796	1,10,591
C. Establishments	4,30,418	4,35,629
Total expenditure ...	5,97,780	5,64,274
Surplus ...	7,65,223	7,12,594

The revenue during the year exceeds that of the previous year by Rs. 86,135 and the expenditure by Rs. 33,506.

* The revenue excludes Rs. 6,747 relating to other Circle as explained at the footnote of Form No. 39.

35. The various contributions to the gross receipts of Rs. 13,80,122 are detailed below :—

	PER CENT.
Major produce, Forest department	*46·35
Major produce, Revenue department	9·45
Bamboos, Forest department	10·38
Bamboos, Revenue department	·06
Grazing, Forest Department	14·22
Minor forest produce, Forest department	5·06
Minor forest produce, Revenue department	7·40
Miscellaneous items	7·08
Total ...	100·00

36. Of the expenditure under " B. Conservancy and Works" and " 52-A. Capital ", 21·32 per cent relates to exploitation, 76·23 to improvement and upkeep of forests and 2·45 to miscellaneous items.

37. The important variations are explained below :—

Receipts.

(i) *By Government Agency.*

Sandalwood.—This is the chief item of revenue in this Circle. The revenue during the year was Rs. 5,66,727 against Rs. 4,84,480 in the previous year though the average price per ton realized was less than that realized last year. The increase is due to a larger yield of dead wood in *North* and *South Salem* and *Vellore*, working arrear coupes in *North Salem* and extraction of about 65 tons of green wood in *Vellore*.

The quantity sold and the revenue realized during the year as compared with the figures of the previous year are given below districtwar :—

Divisions.	1928-29		1929-30	
	Quantity in tons	Revenue.	Quantity in tons.	Revenue.
		Rs.		Rs.
Chittoor	1¼	1,598	⅝	792
Vellore	110	1,82,040	88⅜ / 64⅞†	2,20,485
North Salem	170	2,51,998	212	2,95,237
Central Salem	20	28,078	13¾	19,316
South Salem	13	18,718	17⅝	24,150
Other Circles	1½	2,048	5	6,747
Total ..	315¾	4,84,480	402	5,66,727

* Of this 41·06 per cent represents revenue from sandalwood.
† Represents green wood.

Timber.—The revenue was Rs. 4,939 against Rs. 5,023 in the previous year. The decrease was chiefly in *South Salem*, and was due to want of demand for Kollimalai timber.

Firewood and charcoal.—The revenue was Rs. 1,476 against Rs. 895 in the previous year. The increase was in *Vellore*, and was due to better prices obtained by the sale of fuel in the indicator areas in fuel coupes.

Minor forest produce.—The revenue was Rs. 304 against Rs. 492 in the previous year. The decrease was chiefly in *Vellore* and was due to less quantity of Divi divi pods put up for sale and less price obtained for it owing to the dullness of the market.

(ii) *Purchasers—Forest department.*

38. *Timber.*—Rupees 2,026 was realized during the year against Rs. 2,190 in the previous year. The decrease was chiefly in *Central Salem* and was due to want of demand for the Dombakkal timber coupe and also to the prohibitive cost of transport. Owing to the malarious nature of the locality and distance from the plains, difficulty is experienced in securing the services of sawyers.

Firewood and charcoal.—The revenue realized was Rs. 64,619 against Rs. 59,344 in the previous year. The increase was in *Chittoor, Central* and *South Salem* and was due to better prices realized at the sales in *Central Salem* and in *South Salem* to the adjustment under this head of Rs. 1,000, being the concessional price of fuel coupes sold to contractor in 1925 in return for the construction of part of the Pudupatti-Pillayarkoil road by him, the corresponding debit for Rs. 1,000 being raised under '52-A. Capital.'

Bamboos.—A sum of Rs. 1,45,667 was realized during the year against Rs. 1,41,004 in the previous year. The increase was in *Chittoor* and *South Salem* and was due to two coupes being sold during the year against one in the previous year in the Palmaner range in the Chittoor division, and to the sale of Malayalapatti bamboo series and Nayakankombai bamboo coupe I at increased prices in *South Salem.*

Grazing and fodder grass.—Rupees 1,99,202 was realized during the year against Rs. 2,05,460 in the previous year. The decrease was in all divisions except *Chittoor* and was due to the mortality of cattle.

Minor forest produce.—The revenue realized was Rs. 69,597 against Rs. 77,842 in the previous year. The decrease was in all divisions except *South Salem* and was due to the normal prices obtained in *Chittoor* and *Vellore* divisions, to the poor tamarind crop in *North Salem* and to the smaller prices realized for *Nux vomica* and *Vembadam* bark in *Central Salem*

By purchasers—Revenue Department.

39. *Timber.*—The revenue realized during the year was Rs. 95,764 against Rs. 85,579 in the previous year. The increase was chiefly in *South Salem* and was due to the larger number of darkhast cases disposed of as a result of the resurvey followed by the resettlement and to the greater extent of land assigned in the Salem Revenue district.

Firewood and charcoal.—Rupees 34,792 was realized during the year against Rs. 32,275 in the previous year. The increase was in *Vellore* and *Central Salem* and was due to sale of withered and wind-fallen trees in the unreserves.

Bamboos.—Rupees 811 was realized in *North Salem* during the year against Rs. 6 in the previous year. This is a fluctuating item.

Minor forest produce.—Rupees 95,623 was realized during the year against Rs. 91,910 in the previous year. The increase was in *Vellore* and *Central Salem* and was due to favourable prices realized for tamarind leases in unreserves.

Miscellaneous.

40. *Fines and forfeitures.*—Rupees 3,860 was realized during the year against Rs. 4,924 in the previous year. The decrease was in *Vellore*, *North* and *Central Salem* divisions. This is a fluctuating item.

41. *Rent of buildings.*—Rupees 7,341 was realized during the year against Rs. 5,744 in the previous year. The increase was in all divisions except *South Salem* and was chiefly due to the collection of rent for the District Forest Officer's quarters at *Chittoor* and *Vellore* constructed during the year and to the posting of higher grade rangers in *North* and *Central Salem* divisions.

42. *Other sources.*—A sum of Rs. 86,604 was realized during the year against Rs. 93,598 in the previous year; the decrease was mainly in *Vellore* and *South Salem*. It was due in *Vellore* to crediting the amount realized in 1928-29 from the District Board, North Arcot, for improvement of water facilities in the Javadis to 'Revenue,' while the amount realized in 1929-30 was treated as a reduction of expenditure under the concerned head, and in *South Salem* to the sale in 1928-29 of certain buildings not required by the department.

43. *Refunds.*—The actuals during the year were Rs. 10,372 against Rs. 12,666 in the previous year. The decrease was chiefly in *Vellore* and was due to there being no refund of grazing revenue for 1928-29 to the villages under class II panchayat system in Tiruvannamalai range during the year as this class of panchayat was abolished from 1st July 1928.

EXPENDITURE.

B. Conservancy and Works.

The important variations are explained below:—

44. *I. Sandalwood.*—The expenditure during the year was Rs. 34,484 against Rs. 32,315 in the previous year. The explanation given for the increase of revenue under this item holds good here also.

45. *II. Timber and other produce removed from the forests by consumers and purchasers.*—The expenditure during the year was Rs. 46,038 against Rs. 36,490. The increase was in all divisions and was due to the employment of additional reserve watchers consequent on the reduction in the forest guard's cadre during the year as a measure of retrenchment.

46. *III. Maintenance, repairs and replacement of stores, tools and plant.*—Rupees 1,905 was spent during the year against Rs. 512 in the previous year. The increase was mainly in *Vellore* and *Central Salem*, and was due to the repair to the weigh-bridge machines in the Vellore and Tirupattur depots in *Vellore* division, and to the repair of Avery scales in the *Central Salem* division.

47. *Works.*—Rupees 34,890 was spent during the year against Rs. 26,024 in the previous year. The increase was in all divisions except *South Salem* and was due to substantial repairs being carried out to roads and buildings.

48. *IV. Conservancy and regeneration.*—The expenditure during the year was Rs. 13,123 against Rs. 12,057 in the previous year. The increase was in Chittoor and in the *three Salem* divisions and was due to carrying out the prescriptions of the working plan fully during the year in *Chittoor*, to the clearing of boundary lines which work was done free of cost by the subordinates in the previous year in *North Salem*, and to carrying out tending operations in Sandal coupes in *Central Salem* and *South Salem* divisions.

49. *V. Miscellaneous.*—The expenditure was Rs. 4,116 against Rs. 1,767 in the previous year. The increase was mainly in *North Salem* and was due to increased expenditure on spike operations.

52-A. Capital.

50. *A. Forest surveys.*—The expenditure was Rs. 580 against Rs. 75 in the previous year. The survey work which was just begun at the end of last year was pushed on by No. III Survey Party in *South Salem* during the year. Hence the increase.

51. *B. Organization, improvement and extension of forests.*—The expenditure during the year was Rs. 931 against Rs. 597 in the

previous year. The increase is mainly due to improvement of wells in *Chittoor* and *Vellore* divisions.

52. *C. Communications and buildings.*—The expenditure during the year was Rs. 27,791 against Rs. 16,644 in the previous year. The increase was chiefly on buildings, new works, and was due to the construction of range clerk's quarters at Alangayam, and improvements to certain buildings in *Vellore*, completion of the Denkanikota West Range office building in *North Salem*, to the conversion of the ranger's quarters and Range office at Danishpet into rest-houses and outhouses, and improvements carried out to the ranger's quarters at Hasthampatti and Harur in the *Central Salem* division, and to the completion of the Namakkal Range office building and conversion of stables into a motor garage in the *South Salem* division.

53. *E. Purchase of stores, tools and plant.*—Rupees 2,264 was spent during the year against Rs. 738 in the previous year. The increase was in all the divisions except *Central Salem* and was due to furnishing all rest-houses with furniture according to an improved standard.

8. *c. i. District Establishments.*

54. *Pay of officers—Non-voted.—Plus* Rs. 9,043 due to an Imperial officer having been in charge of *Chittoor* division throughout the year, while in the previous year a Madras Forest Service officer was in charge for nine months and an Imperial officer for three months, and to increments drawn by Imperial officers.

55. *Pay of officers—Voted.—Plus* Rs. 13,902 due to two Extra Assistant Conservators in *Vellore* against one in the previous year, and to the posting of three Extra Assistant Conservators, one in each of the *three Salem divisions*, for working plans duty.

56. *Pay of establishment—Voted.—Minus* Rs. 19,518 due to retrenchment effected in the protective staff in all the divisions and to cessation of the Vernacular Training School in this circle.

57. *Allowances—Non-voted—Travelling allowance.—Minus* Rs. 809 due to one Imperial officer in the *Vellore* division against two officers in the previous year, and economy observed by adopting systematic touring.

58. *Allowances—Voted.—Minus* Rs. 2,731 due to the retrenchment of foresters and economy observed in passing mileages in travelling allowance bills.

59. *Non-contract contingencies.—Rent.—Minus* Rs. 7,121. This chiefly represents arrear rent on Public Works Department building occupied by the Forest department for the years 1926–27 and 1927-28 due to revision of rent adjusted in the previous year.

60. *Miscellaneous.—Plus* Rs. 616 due to the purchase of fire-extinguishers and fire-buckets during the year as per orders of Government in their Order No. 2676 W., dated 26th October 1928.

61. *Supplies and Services—General—Apparatus and materials. —Plus* Rs. 214 due to the purchase of medicines in *Vellore* and *Central Salem* divisions from the Medical Stores Depot, Madras.

62. 8. *c. ii. Research charges payable to Governments, departments and others.—Plus* Rs. 333. Rupees 9,241 shown against this unit last year includes the expenditure of Rs. 2,125 on the field experiments initiated by the Institute of Science sanctioned in Government Order No. 2020, Development, dated 30th November 1928. Deducting this amount, the last year's expenditure on (1) apparatus and working charges and travelling allowance of the Institute staff, and (2) pay and retiring allowances of the Institute staff, was Rs. 7,116 against Rs. 7,449 spent during 1929-30. The increase of Rs. 333 was due to higher retiring allowances paid during 1929-30.

The variations under other heads are small and call for no remarks.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

63. In *Chittoor* division, three kinds of experiments were started, at the instance of the Forest Research Officer, to discover the best way of regenerating Red sanders forests. It was observed that planting in baskets gave better results than either planting with balls of earth or planting cuttings.

Four sample plots intended to record the growth of Red sanders under various conditions were maintained. The next measurement is due in 1932.

Acacia cyanophylla.—During the period under review, sowings of *Acacia cyanophylla*, a drought-resisting Australian species, were undertaken on mounds and in furrows at various elevations from 750 feet to 2,000 feet in Palmaner, Chamala and Gudiyattam ranges. Sowing on mounds gave better results than sowing in furrows, and a further improvement is expected this year by sowing on mounds over pits. The tallest plants measured after a year's growth reached a height of over 5½ feet, and heights above 5 feet were common. In *Central Salem*, a similar experiment on a small scale was started with *Prosopis juliflora* in Shevaroys South range, but the seed was received late in the year and the results were inconclusive. The experiment is being repeated this year.

Soil aeration around Jalari (*Shorea talura*) seedlings under stumps of fellings in 1928-29 and 1929-30 up to a radius of 20 feet

from the stumps were carried out once in three months in the Talakonda Timber Working Circle in *Chittoor* division. The results indicated that soil aeration enables seedlings that would otherwise have died to establish themselves.

Vellore.—Measurements of height and girth of sandal in the sample plots of special tending areas were recorded in sample plot registers. The experiment in the bamboo plots at Komettiyeri were continued and notes of observations were sent to the Research Officer, Ootacamund.

North Salem.—In *North Salem* experiments in lac cultivation were continued at Jowlagiri and Deverbetta. It was unfortunate that the price of lac fell just at the time that the crop was harvested, and, as it has not yet recovered, most of the stock remains unsold. Arrangements are being made to erect washing sheds so that the lac can be put on the market by the Forest department in a finished condition, whereby top prices should be realized. At Jowlagiri, the total quantity of cleaned brood obtained from the three crops was 165 pounds from 85½ pounds used. The results on the whole were poor though the yield obtained from the post-monsoon crop was greater than that from the pre-monsoon and monsoon crops. The poor results were ascribed to parasitic attacks resulting in 50 per cent mortality in the monsoon crop and 40 per cent in the post-monsoon crop. At Deverbetta, the total quantity of cleaned brood obtained from the three crops was 1,675 pounds from 602 pounds used. The results on the whole were good particularly in the monsoon crop (July to December 1929) which gave 1,000 pounds from 130 pounds used. From the post-monsoon crop (December 1929 to March 1930), the yield obtained was low, 275 pounds out of 375 pounds, due to the brood having become parasitised after male swarming with the result that 90 per cent of the crop dried up.

64. *Experiments—In the monsoon crop.*—Inoculation was done with the shorea brood on various species with great success in some cases. *Atylosia albicans*, a useless but quick-growing weed, was inoculated with half a pound of brood lac and gave a yield of 5 pounds. Development was fair in the case of *Desmodium gyrans* and *Dichrostachys cinerea*. In the post-monsoon crop, *Atylosia albicans and Dichrostachys cinerea* produced good results. *Atylosia albicans* seems particularly favourable for lac cultivation in the future; the lac yielded has been tested and found to be of good quality, and the weed is so quick growing and so tolerant of poor soil that extensive plantations can be raised with the minimum of trouble and expense. A photograph showing the growth of lac on this species is appended. *Schleichera* brood put on *Schleichera trijuga* and *Zizyphus jujuba* is quite successful. So also is *Shorea* brood on *Acacia Sundra, Bridelia retusa, Odina wodier* and *Dichros-*

tachys cinerea. It should be placed on record that credit for the excellent results obtained from the commencement of operations up to date is almost entirely due to the District Forest Officer, Mr. Mitchell, and the Research Ranger, Mr. S. Rangaswami Ayyangar. This was not sufficiently emphasized in last year's report.

In *Central Salem*, inoculation was started in the Chitteris by staff lent from *North Salem*, but it is too early to judge the results.

65. *Spike disease of sandal.*—Spike is still spreading in the Yelagiris, but has not been noticed elsewhere in *Vellore* division. No spike is reported from *Central Salem* or *Chittoor*. In *South Salem*, spike continues in the Valappur nad of the Kollimalais and has spread in Karavalli, Jambuthu and Ariyur shola reserved forests. On the Turaiyur-Pachamalais, spike has again made its appearance in V. Kanapadi extension and the unreserves along the Pandal-Chinna Iluppur bridle-path. In *North Salem*, field observations and experiments in connexion with spike investigation were continued during the year. The results are recorded in the proceedings of periodical conferences held at the Indian Institute of Science, Bangalore. Mr. Mitchell has drawn up an interesting note on the history of spike investigation, and it is hoped that this will be published shortly. Grafting experiments in the laboratory and in the field have been highly successful. They establish the transmission of the disease by a virus. It has been proved that leaf tissue is infected much more quickly than other tissues; the cambium region of the stem comes next as regards susceptibility. The root does not appear to be at all susceptible. It has not been found possible to transmit the disease by grafting any parts of the root or the bark. The manurial plots referred to in last year's report have not shown any significant difference with regard to the incidence of spike. The treatment of spiked trees with Atlas solution in October 1929 was not effectual. The treated portions did not die and all the trees showed a recrudescence of spike. The experiments are being continued as there may be factors which have escaped notice. Ecological surveys were conducted with a view to determine the floristic composition of spiked and healthy areas. One striking result is that a spiked area in the locality chosen is characterized by a striking preponderance of Lantana, the proportion in spiked and healthy areas being about 20 to 1. Experiments in sandal regeneration are being conducted on a large scale in *North Salem*, it being necessary to find out the best method of raising sandal for the purpose of spike investigation. The most successful method is to stimulate germination by making a " dump," i.e., a collection of seed placed over a layer of sand and covered with straw which is watered on alternate days. As the seeds germinate the seedlings are picked out and transplanted, together with a suitable host of a slightly larger size

which has been raised in a similar way, under a tree or bush which is the future host. The seedling host is eventually killed off by the sandal seedling, which by this time has formed a root system sufficiently strong to attach itself to the roots of the mature host. It is hoped that this method will enable the sandal seedling to survive the second hot weather, usually the critical period. Once it has done this, it may be considered established. One of the best hosts is dholl, and an experiment is being conducted over an area of 5 acres in order to raise a regular plantation in this manner. If this method proves successful a very great advance will have been made in the propagation of sandal, for the establishment of seedlings hitherto has been a most difficult matter.

CHAPTER VII.—ADMINISTRATION.

66. Mr. T. Clear held charge of the Circle throughout the year. The bifurcation of Vellore division is pending with Government and the question of lightening the work of the Central Salem division by regrouping and redistributing some of the reserves among other divisions remains unsettled. An Extra Assistant Conservator was at Tiruppattur throughout the year, attached to the Vellore division, and besides being in charge of the sandal operations at Tiruppattur itself he relieved the District Forest Officer of the offence work in all the ranges and attended to other miscellaneous work allotted to him by the District Forest Officer. This is a very bad arrangement but it is the only arrangement possible in the circumstances; although it has been going on for the last three years it was only intended as a makeshift pending the formation of a new division.

67. *Tours.*—The Conservator toured in all the divisions and spent 188 days in camp. All the District Forest Officers did more than the prescribed minimum of touring.

68. *Inspections.*—The Conservator inspected all the District Forest offices in the Circle and also the forests in *Chittoor*, *Vellore*, *North* and *Central Salem*. Inspection notes were written in respect of the Chittoor forests and issued in April 1930. The inspection notes relating to *Central Salem* are under preparation.

The District Forest Officers inspected all the Range offices in their divisions.

69. *Sandalwood depots.*—Both the sale depots at Vellore and Tiruppattur were inspected by the District Forest Officer and the result of inspection was satisfactory. The forest depots in *North*, *Central* and *South Salem* were inspected by the respective District Forest Officers with the exception of four in North Salem. Of these

four, two were inspected by the Extra Assistant Conservator attached to the division, one depot was not inspected as the concerned coupe was not worked, and the remaining depot in Dharmapuri range was not inspected.

70. *Audit.*—The accounts of the District Forest offices of *Chittoor* and *South Salem* were audited by the Accountant-General's staff during the year and found to be in a satisfactory condition.

71. *Vernacular Training School.*—No school was held in the Circle during the year.

72. *Health of establishment and sanitation—Chittoor.*—The health of the establishment was bad in Mamandur range, and malaria was particularly virulent. The same was the case in the Javadis of the *Vellore division.* Since the handing over of plains reserves to panchayats it has not been possible to give relief by transferring subordinates from malarious localities. In *Central Salem*, the Chitteris, the Atur-Kalroyans and the Shevaroys North and South ranges were generally malarious, and Guinea-worm was very prevalent on the hills. In *South Salem*, the health of the subordinates working in the Kollimalais and the Pachamalais continued bad, many subordinates went on sick leave and the full strength of the protective staff was never on duty at any time during the year.

As an anti-malarial operation, a suggestion was made by the Conservator of Forests to stock jungle streams in the Kollimalais with larvicidal fish, in order to destroy the mosquito larvæ in them. The Chief Conservator approved of the suggestion and in consultation with the Director of Fisheries, Madras, the Inspector of Fisheries, Nilgiris, was deputed to inspect the Kollimalai streams for selection of the sites suited for the operation. The Kollimalais were chosen as the hill range is isolated and as there is a missionary medical station on the plateau which can record the results achieved.

73. *Casualties.*—In *Chittoor*, one forester died of malaria. In *Vellore*, two foresters, one forest guard, and one range clerk died. The widow of the range clerk was granted by Government a gratuity of Rs. 100 from their compassionate fund. The widows of the two foresters have applied for relief, and they have been recommended for compassionate gratuity. In *Central Salem*, one ranger died of snake-bite and another ranger died of typhoid fever.

CHAPTER VIII.—GENERAL.

1. Formation of and Management by Panchayats.

(To include Forest Village system.)

74. No new reserves were transferred to panchayat management. In *South Salem*, an area of 720 acres in Mallur reserve which

had been mismanaged by a panchayat was recommended for reversion to the Forest department. Orders approving this were passed after the close of the year.

75. *Forest village system (Class II panchayat).*—Nil.

2. MEASURES FOR IMPROVING LOCAL SUPPLIES AND FACILITIES FOR OBTAINING FOREST PRODUCE, WATER-SUPPLY, FUEL, MANURE LEAVES, ETC.

76. (*a*) *Improvement of water-supply in State forests—Boring operations.*—Nil.

77. (ii) *Improvement of water-supply in grazing grounds.*—Rupees 176 in *Chittoor*, Rs. 354 in *Vellore*, Rs. 100 in *North Salem* and Rs. 115 in *Central Salem*, were spent in repairing and deepening water-sources in grazing grounds.

78. (*b*) *The supply of forest produce to meet the wants of the public.*—The wants of the public and factories in the towns were generally met by coupe contractors. Fuel coupes were not leased out to the Co-operative Labour Union in Tiruvannamalai town as was done last year. In *North Salem*, the requirements of the villagers in general were met from unreserves, mitta forests and forests under panchayat management, and there was very little demand for fuel from Government reserves.

79. (*c*) *Supply of manure leaves.*—The question of supply of green manure from reserves under departmental control has since been decided and orders of Government were received after the close of the year. The supply of manure leaf under the coupe system continued in *South Salem*. In *Vellore*, removal of manure leaf of stated species on payment of seigniorage from reserves which are not worked for sandal, timber or fuel, is being permitted under the orders of Government. The demand in *Central Salem*, was met mostly from unreserves and private forests and '*Dainchia*' and *Poinciana elata* were grown on a small scale in private holdings in Attur taluk. *Dainchia* is not regarded with much favour but *Poinciana* is easily raised from cuttings on the borders of fields and is considered a useful manure. Steps are now being taken to throw open unworked reserves of Attur range to manure-leaf cutting, and adequate provision will be made in the consolidated working-plan under revision. In *Chittoor*, under the provisions of the revised working plan, nine manure-leaf felling series, each divided into three annual coupes, were opened; nine coupes were thus sold annually. In *North Salem*, the major portion of the cultivation is dry cultivation for which manure leaf is not required. The few villagers who have wet cultivation get their requirements from unreserves and their own patta lands.

80. (*d*) *Removal of thatch and fodder grass by the public.*—In *Vellore*, free removal was permitted as usual from all the reserves including fuel coupes closed to grazing. In *North Salem*, the villagers surrounding the Hudaidurgam reserved forest were allowed to cut and remove grass free of cost from Hudaidurgam reserved forest to minimise the danger from fire. Since the close of the year the concession has been extended in view of the recommendations of the Agricultural Commission.

3. Timber and Sandalwood Transit Rules.

81. (i) *Timber Transit Rules.*—These are in force only in *Chittoor* division where they are working satisfactorily.

(ii) *Sandalwood Transit Rules.*—The rules referred to in the last year's report remain in force. They are not as effective as they should be, and proposals for revising them are under consideration.

4. Jungle Tribes.

82. The ' Hill Village System ' continued in force in the hill villages on the Javadis in *Vellore* division and in the Chitteris in *Central Salem* division. The introduction of the system in the Salem-Kalroyans of the Attur range and in the Bodamalais of the *South Salem* division is under consideration. The extension of the scheme to the Pachamalais and Kollimalais also was suggested but was found impracticable. In *Vellore* and *Central Salem,* refunds of grazing fees for satisfactory protection of sandalwood areas and for maintenance of reserve boundary lines and special rewards for successful fire-protection of reserves comprised in the scheme were made in open Darbars convened for the purpose by the respective District Forest Officers. Deserving Malaiyalis continued to be employed as watchers, forest guards and foresters. The elementary schools at Komettiyeri and Veerappanur in *Vellore* division are working well. Two more schools have recently been opened at Nadanur and Kuttathur. The question of opening a dispensary and co-operative society at Komettiyeri is under correspondence. In *South Salem*, the co-operation of the Malaiyalis on the Kollimalais and Pachamalais is enlisted under the fire reward system and they supply labour for departmental work on the hills. Attempts were made to introduce the co-operative system among them and thus to free them from indebtedness to the plainsmen. A beginning is reported to have been made in this direction by the Co-operative department in the Trichinopoly district, but the indolence of the Malaiyalis is a formidable obstacle.

5. Mining and Quarrying.

83. *Mining—Vellore.*—A licence to prospect for pyrites in Periyamalai reserved forest was granted to Mr. H. A. Golwynne, Madras, for a period of one year from 2nd March 1929. *Central Salem.*—In the mining lease of Kurumbapatti reserved forest referred to in the last year's report, no progress was made during the year beyond clearing the tree growth.

84. *Quarrying—Chittoor.*—A stone quarry in Amburdrug reserve was leased for Rs. 401. Permission was granted for quarrying elsewhere on payment of seigniorage rates. *Vellore.*—Banavaram quarry was leased for Rs. 205. The triennial lease of Avarampalaiyam quarry continued this year. Local fund contractors were allowed to remove road metal on payment of seigniorage fees. *Central Salem.*—The quarrying of stones and gravel was allowed in Godumalai reserved forest on payment of seigniorage fees, for the construction of the Salem-Attur railway. *South Salem.*—Small quarries in reserves and unreserves were leased by auction to meet the local demand. Royalty was charged for other departmental works irrespective of the agency of collection both for reserves and unreserves. The concession of free quarrying hitherto allowed to local bodies and other departments of Government has been withdrawn.

6. Livestock.

Elephants.—Nil.

85. *Other animals.*—One bull was maintained by the department for watering the plants in Whiteside's garden reserved forest and in the forest rest-house compound at Palmaner in *Chittoor* division.

7. Civil Suits.

86. *Chittoor.*—The result of the appeal preferred by the Zamindar of Bangarupoliem is not yet known. *Vellore.*—One Khazi Syed Yusuff Sahib of Chowlur gave a civil notice on 27th September 1929 against the Collector's order refusing the registration of his property mark for sandalwood. The matter went up to Government who refused to interfere with the Collector's orders. There was no further development during the year. *North Salem.*—One Shukkur Sahib filed a civil suit against the department in 1929 claiming compensation of Rs. 600 for five pieces of sandalwood not delivered to him but burnt as sapwood which were ordered by the Sub-Magistrate, Hosur, to be returned to the party. The department proved by records and registers that the five pieces were purely sapwood and that the party was entitled only to their

worth as fuel. The District Munsif, Krishnagiri, has since passed judgment awarding the plaintiff the sum of Rs. 1-7-0 being the fuel value of the pieces. *South Salem.*—The two suits filed by Mr. Ramachandra Ayyar and Natti Periyamuthumachi Reddi in the Court of the District Judge, Trichinopoly, the details of which were reported in the last year's report, were still pending disposal by the District Judge. The Collector of Trichinopoly is contesting these suits on behalf of Government.

A notice of execution proceedings was served on the Forest Range Officer, Namakkal, by the District Munsif of Kulittalai in O.S. No. 756 of 1923 that the site on which the old Puliansholai subordinates' quarters (now classed as forester's inspection shed) stands, is claimed by the decree-holder in the suit above referred to, to be his property covered by the decree. The Forest Range Officer's report was called for from which it transpired that the piece of land referred to was acquired through the Revenue Department on payment of compensation and that, after the acquisition proceedings were completed, the site and building were handed over by the Revenue Department to the Forest department and that an indefeasible title for the land has been established. All connected records of acquisition have been sent to the Collector who has forwarded them to the Government Pleader to draft a memorandum of objections. The hearing of the execution petition is pending and the Government Pleader with the help of the Range Officer, Namakkal, is contesting the execution petition. The result is awaited.

8. CONTROL OF UNRESERVED LANDS BY THE FOREST DEPARTMENT.

87. *Vellore.*—The land revenue administration of the Javadi Hill villages of Tiruppattur taluk has been under the control of this department for the last twelve years and its continuance for another year up to 31st August 1930 was sanctioned in G.O. No. 242, Development, dated 3rd February 1930. Proposals have been submitted to extend the land revenue administration throughout the Javadis and the Yelagiris, after the bifurcation of the Vellore division. In *South Salem* the unreserves of the Pachamalais and Kollimalais continued to remain under the partial control of the Forest department in the matter of (i) regulating Ponakkad cultivation, (ii) protection and extraction of sandalwood and (iii) leasing out minor forest produce. The Forest department leases manure leaf in certain unreserves of the Attur taluk but the Revenue department is responsible for protection. *North Salem.*—The control of unreserves rests with the Revenue department. Some unreserves containing valuable sandal and timber are being ruined and steps are being taken to obtain better control over such areas. *Central Salem.*

—Unreserves are under the direct control of the Revenue department, except the Kolagur and Kanapadi unreserves on the Shevaroys where bamboos are leased by the Forest department.

88. The relations between the Forest and Revenue departments continued to be friendly, but more co-operation in the Salem district is desirable, particularly in the matter of protection of unreserves where the Revenue department is responsible.

ENCLOSURE

AN ACCOUNT OF THE OPERATIONS AND RESULTS IN EACH FOREST DISTRICT OF THE FOURTH CIRCLE DURING 1929-30.

CHITTOOR DIVISION.

Description.—This division covers portions of the Revenue districts of Chittoor and North Arcot and its elevation varies from about 500 feet to 3,794 feet above the sea-level. The forests are of the dry deciduous scrub type for the most part except in Mamandur and Chamala valleys where timber of valuable species, mainly Red sanders, is common. In the Palmaner range which is a continuation of the Mysore plateau, sandal occurs scattered although it does not reach any large dimensions.

2. *Area.*—The aggregate area of the reserved forests in the division is 786 square miles. Of this 577 square miles are under the management of the Forest department and 209 square miles are under the control of panchayats.

3. *How the forest division is split up into subordinate administrative charges—*

Ranges.	Number of beats.
1. Chandragiri	9
2. Chamala	10
3. Mamandur	9
4. Palmaner	15
5. Gudiyattam	16
Total ...	59

4. *Cost of administration—*

	Rs.
District Forest Officer	16,115
Range Officers	11,830
Subordinate staff	25,629
Clerical staff	11,050
Total ...	64,624

5. *Cost under other important heads—*

	Rs.
Exploitation	982
Improvement and upkeep of forest	21,530
Miscellaneous	...
Total ...	22,512

6. *Income from main sources—*

Sandalwood	792
Timber	11,786
Fuel	10,027
Bamboos	14,575
Grazing	25,828
Minor forest produce	20,875
Miscellaneous, including drift and waif wood ...	9,564
Total ...	93,447

7. *The chief work done in the division.*—Extraction of Red sanders (*Pterocarpus santalinum*) and Jalarai (*Shorea talura*) timber from Chamala and Talakona reserves.

Introduction of sandal in a systematic manner by establishing propagation centres.

Construction of roads in ranges where communications were unsatisfactory.

8. The financial results of the year are given below:—

	Rs.
Total revenue	93,447
Total expenditure	89,739
Net profits ...	3,708

Vellore Division.

Description.—The division comprises the whole of the Javadi Hills of the Eastern Ghauts with their outliers, roughly 50 miles long and 30 miles broad, with an elevation rising to about 3,200 feet. To the south, lie the Kalroyans, the outer edges of which are administered from Vellore. The territorial jurisdiction of the division extends over most of the South Arcot and Chingleput districts in which, however, nearly all reserved forests have been handed over to Revenue panchayat management. The hill forests are mostly deciduous, with evergreen patches at higher elevations. The forests are notable for sandal and bamboos, especially bamboos which are famous throughout Southern India, and they contain also the usual small timber and fuel species found in the Carnatic.

2. *Area.*—The aggregate area of the reserved forests in the division is 1,116 square miles, of which 706 square miles are under the control of the Forest department and 410 square miles under the control of the Revenue department.

3. *How the forest division is split up into subordinate administrative charges—*

Ranges.	Beats.	Sandal wood series.	Total.
1. Tiruppattur	9	4	13
2. Alangayam	8	1	9
3. Chengam	4	3	7
4. Tiruvannamalai	7	...	7
5. Polur	7	3	10
6. Santhavasal	9	3	12
7. Odugathur	29	...	29
Total ...	73	14	87

4. *Cost of administration—*

	Rs.
District Forest Officer and his assistants ...	24,009
Range Officers	18,084
Subordinate staff	38,468
Clerical staff	15,894
Total ...	96,455

5. *Cost under other important heads—*

Exploitation	11,890
Improvement and upkeep of forests	45,932
Miscellaneous	59
Total ...	57,881

6. *Income from main sources—*

Sandalwood	2,20,485
Timber	22,664
Fuel	44,565
Bamboos	96,304
Grazing	50,442
Minor forest produce	64,716
Miscellaneous including drift and waif wood ...	35,243
Total ...	5,34,419

7. *The chief work done in the division.*—The marketing of sandalwood, fuel, bamboos and minor forest produce. The construction and repair of forest roads, buildings and wells, improvement of water facilities, and protection and improvement of the forests in general. The Land Revenue Administration of some of the hill villages is a special feature of the Tirupattur Javadis where the Forest department assumes the functions of the Revenue department.

8. The financial results of the year are given below:—

	Rs.
Total revenue	5,34,419
Total expenditure	1,61,377
Net profit ...	3,73,042

North Salem Division.

Description.—Part of the division covers a portion of the Mysore plateau which contains large areas of sandalwood forests. The lower areas towards Salem (the 'Talaghat') do not contain so much sandalwood, but important timber species notably *Hardwickia binata* grow in profusion as also the commoner timber and fuel species found in the dry deciduous forests. Bamboos occur in all ranges except Krishnagiri.

2. *Area.*—The aggregate area of the division is 578 square miles, of which 568 square miles are under the control of the Forest department and 10 square miles under the control of the Revenue department.

3. *How the forest division is split up into subordinate administrative charges—*

Ranges.	Beats.	Sandal wood series.	Total.
1. Denkanikota East	5	5	10
2. Denkanikota West	7	2	9
3. Anchetti	8	2	10
4. Dharmapuri	8	2	10
5. Krishnagiri	6	...	6
Total ...	34	11	45

Besides the above, there is a Research Ranger with a supernumerary assistant employed on spike investigation work and the cultivation of lac. There was also a Supernumerary Ranger during the year, employed in checking the transport of patta sandalwood.

4. *Cost of administration—*

Pay.	Rs.
District Forest Officer and his assistant ...	16,068
Range Officers	13,456
Subordinate staff	22,225
Clerical staff	11,278

Travelling allowance.

	Rs.
District Forest Officer	2,305
Extra Assistant Conservator, Range Officers, subordinate and clerical staff	7,479
Total ...	72,811

5. *Cost under other important heads—*

Exploitation	17,591
Improvement and upkeep of forests	18,281
Miscellaneous	3,748
Total ...	39,620

6. *Income from main sources—*

Sandalwood	2,95,237
Timber	9,969
Fuel	3,039
Bamboos	11,050
Grazing	33,663
Minor forest produce	16,061
Miscellaneous, including drift and waif wood ...	8,164
Total ...	3,77,183

7. *The chief work done in the division.*—The extraction of sandalwood is the chief work done in the division. Investigation in collaboration with the Indian Institute of Science, Bangalore, and the Forest Entomologist, Dehra Dun, is being undertaken with a view to discover the cause of 'spike' disease in sandal. Lac cultivation is being carried out on an experimental scale.

8. The financial results of the year are given below:—

	Rs.
Total revenue	3,77,183
Total expenditure	1,25,049
Net profit ...	2,52,134

Central Salem Division.

Description.—The division covers the Shevaroys in the centre and the Kalroyan Hills in the north, the north-eastern part of the latter being known as the Chitteris. The southern and western parts of the division consist of undulating ground where *Hardwickia binata* and fuel species are found. The forests in the higher elevations contain small timber, bamboos and sandal.

2. *Area.*—The aggregate area of the reserved forests of the division is 945 square miles, of which 230 square miles are under the control of the Revenue department and 715 square miles under the control of the Forest department. An area of 20 square miles was disreserved during the year.

3. *How the forest division is split up into subordinate administrative charges—*

	Ranges.	Beats.
1. Attur	...	20
2. Harur	...	19
3. Shevroys South	...	10
4. Shevroys North	...	7
5. Cauvery	...	10
	Total ...	66

4. *Cost of administration—*

Pay.	Rs.
District Forest Officer and his assistant	13,000
Range Officers, subordinate and clerical staff ...	42,713
Allowances	7,292
Total ...	63,005

5. *Cost under other important heads—*

Exploitation	2,512
Improvement and upkeep of forests	21,540
Miscellaneous	100
Total ...	24,152

6. *Income from main sources—*

Sandalwood	19,316
Timber	19,044
Fuel	34,337
Bamboos	18,184
Grazing	66,520
Minor forest produce	24,553
Miscellaneous, including drift and waif wood ...	24,810
Total ...	2,06,764

7. *The chief work done in the division.*—The work is mainly control of grazing and supply of fuel and bamboos to Salem and other large towns. A limited quantity of sandalwood is extracted.

8. The financial results of the year are given below:—

	Rs.
Total revenue	2,06,764
Total expenditure	91,719
Net profit ...	1,15,045

South Salem Division.

Description.—The division comprises three main ranges of hills, viz., the Bodamalais, the Kollimalais of Salem district and the Pachamalais of Salem and Trichinopoly districts, all isolated hill ranges reaching in some places an elevation of 4,000 feet. The higher slopes contain semi-evergreen forests with occasional sholas. Sandalwood occurs in fair quantities, and bamboos to a very limited extent. Small timber and fuel species, notably *Albizzia amara*, occur throughout the lower slopes.

2. *Area.*—The aggregate area of the reserved forests in the division is 411 square miles of which 255 square miles are under the control of the Forest department and 156 square miles under the control of the Revenue department.

3. *How the division is split up into subordinate and administrative charges—*

Ranges.	Beats.
1. Rasipur	9
2. Namakkal	9
3. Tammampatti	12
4. Turaiyur	12
Total ...	42

4. *Cost of administration—*

Pay.	Rs.
District Forest Officer and his assistant	11,990
Range Officers, subordinate and clerical staff ...	35,362
Allowances	8,062
Total ...	55,414

5. *Cost under other important heads—*

	Rs.
Exploitation	2,720
Improvement and upkeep of forests	19,948
Miscellaneous	209
Total ...	22,877

6. *Income from main sources—*

Sandalwood	24,150
Timber	39,266
Firewood and charcoal	8,919
Bamboos	6,367
Grazing	22,749
Minor forest produce	39,319
Miscellaneous, including drift and waif wood ...	20,775
Total ...	1,61,545

7. *The chief work done in the division.*—Control of grazing and supply of fuel, leaf manure, and minor forest produce. A limited amount of sandalwood also is extracted.

8. The financial results of the year are given below:—

	Rs.
Total revenue	1,61,545
Total expenditure	80,923
Net profit ...	80,622

SALEM,
13*th September* 1930.

T. CLEAR,
Conservator of Forests, IV Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1930.

FIFTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

ALTERATION IN AREA.

Reserved forests.—Twenty-two acres in *South Coimbatore* and 249 acres in *Madura* were disforested during the year. Proposals for the disreservation of the Honnametti estate have been submitted and are pending orders of Government.

2. *Reserved lands.*—Proposals for reservation of an extent of 6·63 acres, site occupied by the Forest buildings in Kuttalam reserved forest, left out at resurvey, have been submitted.

3. *Forest settlement.*—Nil.

DEMARCATION.

4. Seven miles of enclosure boundary in *Kollegal* and 8 miles reserve and enclosure boundaries and areas of disreserved blocks in *Madura* were permanently demarcated at a cost of Rs. 906. Rupees 74 was spent in *North Coimbatore* for purchasing stone pillars for demarcation and Rs. 30 in *South Coimbatore* for demarcating the site handed over to the Ropeway Company. Two miles of the outer boundary of the Punachi Timber Working Circle and 6 miles of the common boundary between *South Coimbatore* and *Madura* and $2\frac{3}{4}$ miles round Navamalai in *South Coimbatore* were repaired at a cost of Rs. 172. The common boundary between reserved forest and Kattalamalai estate in *Tinnevelly* was cleared at a cost of Rs. 68.

The reclearing of the existing boundaries was as usual done by the subordinates free of cost in all divisions except *South Coimbatore*.

FOREST SURVEYS.

5. (*a*) *By the Survey of India Party.*—Nil.

6. (*b*) *Local Surveys.*—The survey of coupes and regeneration areas was as usual done by the subordinates.

7. Reference maps were maintained in all districts and posted to end of March 1930.

CHAPTER II.—MANAGEMENT OF FORESTS.

1. REGULATION OF MANAGEMENT.

Preparation and control of working plans.

(*a*) Preparation.

8. The preparation of a working plan in *North Coimbatore* and revision of the plan for the Mount Stuart forests in *South Coimbatore* is still under progress, under the control of the Working Plans Conservator. A scheme for working fuel coupes in Virupakshi section in Palni range, *Madura district*, was tentatively approved by Conservator for three years. The rough scheme under which fuel coupes in Kodaikanal range were being worked is under revision. The revision of the tentative working plan for *Tinnevelly* is in progress. The preparation of a working plan for the evergreen forests of Kannikatti, *Tinnevelly*, is under consideration.

(*b*) Control.

9. The prescriptions of the existing working plans and schemes were generally followed except in the following cases:—

North Coimbatore.—Felling in five fuel series is behindhand due to lack of demand. Improvement felling in Kallar and Jaccanari Working Circle were not carried out as these were found unnecessary.

Madura.—Working in three fuel coupes was done under simple coppice against coppice with standards by mistake. Working of coupes in three series has been rearranged and in one series stopped pending revision.

Tinnevelly.—One coupe was worked in two years instead of in one year as the area to be worked was large.

2. COMMUNICATIONS AND BRIDGES.

(*a*) *Roads and Bridges.*

10. The expenditure on new works amounted to Rs. 18,552 and on repairs to Rs. 44,931 against Rs. 6,452 and Rs. 51,325 in the previous year. The chief works were—

New constructions—North Coimbatore.—A deviation of 1 furlong in the Kempanaickenpalaiyam-Kadambur road at a cost of Rs. 92.

South Coimbatore—

	Rs.
Fair weather road to Regeneration Area, 1930 ...	1,236
Do. from Anaipadi to Sungam ...	3,764
Do. from Tunacadavu Ar to Sungam (incomplete)	7,422

Madura.—Ayyalur-Thoppaswamimalai road, 6 miles.

Extension of Mulayar road, 3 miles—Rs. 4,580.

	Rs.
Tinnevelly—	
Metalling Kalakad-Sivanaperi road—4 furlongs.	930
Acquisition of land for roads in 1928–29	50
Conversion of Martins Hut bridle-path into a road —2 miles 2 furlongs	211
Cart-track in coupe XI, Ayyanarcoil felling series —4 furlongs	266

11. Five hundred and ninety-three miles and 4 furlongs of roads and bridle-paths were maintained during the year. A sum of Rs. 11,383 was contributed by the several district boards for repairs to roads and this sum was credited to Revenue. Rupees 2,033 being contribution on ghaut roads in *Kollegal* and *North Coimbatore* maintained by the department was collected from the district board after the close of the year.

(*b*) *Buildings.*

12. Expenditure on new works was Rs. 9,386 and the chief works executed were—

New constructions.

Kollegal.

	Rs.
Subordinates' lines at Ponnachi	2,400
Do. Tamarakerai	2,278
Improvement to Range Officer's quarters—Kollegal	145
Addition of a bath-room to minor produce godown.	27
Completion of range clerk's quarters at Thattakerai	505

North Coimbatore.

	Rs.
Improvement to existing buildings	201

South Coimbatore.

Improvement to waterfall buildings	361
Subordinates' lines at Karattur incomplete ...	1,654
Improvement to forester's shed at Topslip	122

Madura.

Subordinates' lines at Perumalmalai	626
Do. Vandaravu	669

Tinnevelly.

Addition of a latrine to Range Officer's quarters at Sivanaperi	120
Compound wall to Range Officer's quarters—Kadayanallur	124
Improvement to subordinates' lines—Kannikatti ...	48

Subordinates' lines at Valayapalaiyam valued at Rs. 1,659, store-shed at waterfall valued at Rs. 845 in *South Coimbatore*, and a thatched shed valued at Rs. 79 at Kariar in *Tinnevelly* were dismantled during the year as being not useful. Outhouses at Sirumugai, guards huts at Kodiyur and Teakkampatti in *North Coimbatore* valued at Rs. 444 were written off.

13. Rupees 11,188 was spent on repairs to buildings during the year.

(c) *Miscellaneous.*

14. A well in *Kollegal* and another in *North Coimbatore* were deepened at a cost of Rs. 101 and a force pump was put up in *South Coimbatore* at a cost of Rs. 60. Other wells and water channels were repaired and silt in them cleared at a cost of Rs. 391. Rupees 524 was spent in maintaining the telephone line in *South Coimbatore*.

3. Protection of Forests.

(a) *General protection.*

15. The following statement compares the total number of forest offences during the year under review with those of the previous year :—

Reserves and unreserves.

Cases.	Fires.		Felling.		Grazing.		Other offences.		Total.	
	1928-29.	1929-30	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.
A. Taken into Court.	7	8 11	1,404	1,478	226	163	53	62	1,690	1,722
B. Compounded ..	38	4 6	2,233	2,126	448	386	190	305	2,909	2,827
C. Undetected ..	179	162	17	22	1	4	2	..	199	188
Total ..	224	191	3,654	3,626	675	553	245	367	4,798	4,737

The figures show a fall under all heads except under other offences which show an increase of 122 cases mainly under cases compounded. The decrease in two districts is accounted for by the fact that heavy punishments were inflicted by the sub-magistrates.

16. *Cases old and new dealt with during the year.*—Of the 2,363 cases taken into court including the old ones, 1,008 ended in conviction, 879 in acquittal, leaving a balance of 476 pending with the magistrates at the close of the year. Of the acquittals most of them related to cases in which compounding fees were paid in court. Thirteen cases had to be withdrawn in *Madura* as the subordinates who charged the cases were either not in service or the accused died or could not be identified. Punishments awarded by magistrates were generally adequate. In *Tinnevelly* the Taluk Magistrate of Srivaikuntam acquitted four cases without sufficient grounds. The District Magistrate after perusal of the judgments opined that the judgments showed bias on the part of the magistrate towards the department and warned him. Rupees 42,525 was realized as compounding fees against Rs. 41,750 in the previous year.

17. In all the districts the Range Officers enquired into a percentage of the offences and the following District Forest Officers held enquiries themselves as noted below :—

	Cases.
Kollegal	15
Coimbatore North	9
Combatore South	4
Tinnevelly	11

18. *Rewards.*—Rupees 135 was distributed as rewards to subordinates, Rs. 10 in *North Coimbatore* and Rs. 125 in *Madura*. Rupees 45 was disbursed as rewards in *North Coimbatore* after the close of the year.

19. *Patrol.*—In *Kollegal* surprise inspections and special secret patrols were arranged by two Range Officers and the results are reported to be satisfactory. One Range Officer with half a dozen subordinates caught 29 persons in the act of removing forest produce.

The usual notice of warning the public against setting fire to reserved forests was published in the district gazettes. Due to occurrence of fire, an extent of 11,000 acres were closed to grazing in *Tinnevelly*.

(*b*) *Protection from fire* (*calendar year* 1929).

20. *Special protection.*—The area attempted to be specially protected during the year was 411,485 acres against 225,952 acres in the previous year and the cost of protection was Rs. 5,736 against Rs. 3,458 in the previous year. The total area burnt was 4,152 acres against 1,509 acres in the previous year, the percentage of successful protection being 98·99 against 99·33 in the previous year. The increase in cost of protection was chiefly in *Madura* due to fire-protection of the pine plantations at Kodaikanal.

21. *Kollegal.*—The sandal areas in the district were specially protected by burning the grass between the outer edges of the sandal blocks early in the year and no fire occurred during the year in these areas. Early burning was done over an extent of 17,726 acres around sandal areas at a cost of Rs. 456-15-0. The Kollegal-Mysore frontier boundary was cleared and burnt over a distance of 19 miles at a cost of Rs. 190 and the taluk boundary over a distance of 6 miles at a cost of Rs. 54-12-0. A distance of $3\frac{1}{2}$ miles round Ponnachi shola and 14 miles of path was cleared at a cost of Rs. 35.

North Coimbatore.—Early burning of the grassy patches in Hassanur and Geddesal sandal bearing areas was done at a cost of Rs. 54. Results are encouraging. Patches covering $27\frac{1}{2}$ square miles in grassy hill slopes were burnt at a cost of Rs. 196. During the year definite halting places for carts on main roads were established and fire traced. This had an excellent effect in keeping down fires.

South Coimbatore.—Besides the early burning of grass around sholas on the grass hills, the regeneration areas and timber depots were fire-protected at a cost of Rs. 1,248-15-0.

Madura.—The fire-protection of the pine plantations and Ampthill downs was done as in previous years and the result except in the latter area was satisfactory.

Tinnevelly.—System of fire-protection by fire patrols was continued and the cost of employment of fire patrols amounted to Rs. 343.

22. *General protection.*—The area under this heading was 1,623,452 acres against 1,809,234 in the previous year and the area burnt 47,456 acres against 54,649 acres in the previous year. The number and origin of fires are compared in Appendix A.

23. The average cost of special and general protection was Rs. 8-14-9 and As. 12-6 per square mile attempted.

(c) *Protection against cattle.*

24. Two thousand four hundred and twenty-eight square miles were opened to grazing of all animals except goats against 2,417 square miles in the previous year. Ten square miles were kept open in *Tinnevelly* for part of the year.

25. The grazing incidence was—

	Acres per cow unit.
Kollegal	6
Coimbatore, North	8
Coimbatore, South	12
Madura	8
Tinnevelly	6

Grazing permits were issued in *South Coimbatore* for three elephants at Rs. 10 each. The number of cattle impounded was 7,389 against 10,854 in the previous year and 12,394 the average of three years ending with 1928–29.

(d) *Protection against injuries due to natural causes.*

26. Teak plantations in *South Coimbatore* continued to be attacked by defoliators though less severely than usual. Spike is still prevailing in the sandalwood areas of *Kollegal* and *North Coimbatore*. In *Tinnevelly* some sandal trees were found dying prematurely in Alagarcoil Valley. Spike was suspected and specimens of affected trees were sent to the Indian Institute of Science,

Bangalore. It was reported that they did not show any of the usual symptoms of spike but that the premature death and unhealthy condition might be due to want of a proper host for the sandal. It was also suggested that some leguminous host be planted up near the affected trees. Cuttings of *Poincinnœlata* were planted near the diseased sandal and the experiment is being watched.

27. *Weeds and climbers.*—In *Kollegal* creeper-cutting was carried out in the sandalwood working circles over an area of 12,040 acres at a cost of Rs. 327-8-0. In *North Coimbatore* creepers on trees were cut by subordinates during patrol. In *South Coimbatore* weeding and climber-cutting in fuel coupes already worked over was done at a cost of Rs. 498. As an experiment, burning all brushwood and cutting back coppice shoots in one fuel coupe over an area of 15 acres was tried at a cost of Rs. 23-7-0.

Weeding and climber-cutting was also done around young teak plants in Punachi Timber Working Circle. Rupees 586 was spent in *Tinnevelly* in carrying out this operation in felled fuel coupes.

28. *Prickly-pear—Strobilanthus.*—The cochineal insect for the destruction of prickly-pear has been introduced in the *Madura*, *South Coimbatore* and *North Coimbatore* divisions. Instructions have been issued to all District Forest Officers.

Strobilanthus is uprooted by contractors in working their fuel coupes in *Tinnevelly*. The right to remove dead Strobilanthus was sold for Rs. 215 in Kodamadi range.

29. *Damage by animals—Kollegal.*—Elephants continue to do considerable damages to the forest growth, and crops in various enclosures. Steps are being considered to start elephant-catching in this locality. One solitary tusker was shot during the year. Sambur and deer cause damage to young sandal seedlings.

South Coimbatore.—Conditions are as in previous years.

Madura.—Damage by elephants continues at Vannathiparai. In coupes I and II of Vannathiparai sambur have also done damage.

Tinnevelly.—In the special sandal areas of Srivilliputtur range elephants caused damage to sandal, Albizzia amara and teak. Teak coppice growth in the fuel coupes and teak plants of four years old in Mundanthorai and Kariar plantations suffered considerably from sambur.

30. *Damages by rain and floods.*—Nil.

CHAPTER III.—SYLVICULTURE.

SECTION I.—FORMATION AND REGENERATION.

(i) *General progress of areas under regeneration.*

31. *Kollegal.*—Operations for propagation of sandal in portions of Dodasampagai, Madeswaranmalai, Chickkailur and Yedayarhalli reserves are being continued. Coppice growth in the fuel and agricultural implement coupes is poor. Orders to close the felled coupes for five years to grazing were given effect to from 1st July 1930 and the result will be reported in the next year's report.

North Coimbatore.—Regeneration of sandal in all sandal areas is good. Ramanpatti enclosure and the narrow margin bordering it in the Palamalai reserve are very rich in sandal and free from spike. Natural reproduction of other important species such as teak, vengai and rosewood, is fair. 'Spike' has been noticed at Burliar in the Jaccanari reserve.

South Coimbatore.—The year was a good seed year in Tunacadavu range for teak, rosewood, vengai and karimarudu and in the case of rosewood it was profuse. Owing to a prolonged hot weather and want of sufficient rains, and the previous year being a very bad seed year the regeneration of teak and rosewood in Punachi range was not satisfactory. But the regeneration of rosewood by root-suckers was fair. There is appreciable regeneration of vengai under mother trees.

Natural regeneration from seeds is not good in Pollachi range due to want of timely and sufficient rains. Owing to weeds and thorny bushes the growth of seedlings in coupes is hampered. In higher areas, especially in valleys, young seedlings of rosewood and vengai are met with but teak is absent in most places. Udamalpet range—natural regeneration is poor.

Madura.—Natural regeneration of *Dalbergia latifolia*, *Albizzia lebbek* and *Odorattissima* is fair in Vannathiparai and Sethvaikal valley in Cumbum range. There is a patch of semi-evergreen in the Ayyancoil valley of the Karandamalai reserve, and natural regeneration is fairly good here. Regeneration of vengai and rosewood by root-suckers in Sirumalai and Waguthumalai reserves is fair. Sandal regeneration in Kombai reserves of Cumbum range and Sirumalai and Sathivar valley reserves of Sholavandan range is good.

Tinnevelly.—Sandal is found in the lower portions of Kuttalam reserve; and in Alagarcoil valley, in a block of about 3,000 acres. It is spreading naturally. The sandal plots introduced in 1923 in Kannikatti and Kodamady ranges are growing well. Sandal was sown in small plots in six beats of Nanguneri range and the results are satisfactory.

(ii) *Establishment of reproduction under working plan or scheme.*

(*a*) Mainly natural.

32. *Kollegal.*—In favourable localities such as stream beds and road margins sandal comes up naturally from seeds. Coppice growth in fuel coupes is very slow due to poverty of the soil.

North Coimbatore.—Coppice reproduction in felled fuel coupes was good.

South Coimbatore.—Reproduction from coppice shoots in felled coupes is satisfactory.

Madura.—Regeneration of rosewood is good and *Adina cordifolia* fair at *Vannathiparai* and that of *Albizzia amara* is satisfactory in fuel coupes of Natham, Sholavandan and Ayyalur ranges.

Tinnevelly.—Regeneration by coppice shoots is satisfactory, and that from seed generally poor. Teak, vengai, *Albizzia lebbek* and rosewood in Ayyanarcoil felling series establish themselves naturally. *Dalbergia tamarindifolia* reproduces itself well in the clear-felled coupes of Vallanad reserve. *Acacia arabica* is found in abundance in the Muthur tank of Wolf Hill reserve and is coming up from seed naturally under the old trees. The regeneration of evergreen species is under investigation by the Assistant Working Plan Officer and several important conclusions have been arrived at, as a result of operations conducted during the past year.

(*b*) Mainly artificial.

33. *South Coimbatore—Tunacadavu range.*—An area of 202 acres in five blocks was selected, clear-felled, and burnt. Of this 15 acres were handed over to Kadirs and Mulcers for taungya cultivation, and $3\frac{1}{2}$ acres to the Forest Research Officer for his experiments and the balance was utilized for the formation of the 1930 regeneration area. The total cost of work done departmentally was Rs. 3,860. The area was dibbled in April. Regeneration area of 1929 was weeded seven times and the percentage of existing seedlings is good, probably about 90 per cent. The 30-acre plot with teak and rosewood is fairly satisfactory.

Renegration area, 1928.—In the 35 acres leased out for paddy crop casualties have been replaced and some of them have established themselves. Due to failure of continuous rains immediately after regeneration this plantation is bad.

Regeneration area, 1927.—Satisfactory except in the northern portion. Teak is growing very well. The *Acrocarpus* in the 20 acres is doing fairly well. Bamboos and creepers which were

coming up profusely over a part of this area were cleared at a cost of Rs. 332. Rosewood is coming up well and not much browsing has been noticed.

Regeneration area, 1926.—This area is well stocked but the growth and girth is not what it should be for a 4-year old plantation. Much of the teak was so damaged by wild elephants that the whole area had to be gone over cutting back damaged teak at a cost of Rs. 172. Rosewood is not as much in evidence as it was.

Regeneration area, 1925.—This plantation was also much damaged by wild elephants. The area in the middle of the plantation is fairly well stocked and has a good height growth. Some karimarudu is coming on fairly well in swampy areas. The area will be due for light thinning next year.

Punachi range.—Creeper-cutting was done in compartments 7 and 8 over an area of 187·8 acres and in compartments 20 and 2 over an area of 234 acres. This has helped the young regeneration. Weeding and climber-cutting were done in compartment 14-*b*, *c*, *d*, over an area of 43¼ acres and in periodic block 1926—28 over an area of 65 acres. Results are satisfactory. Two bags of teak and two of rosewood seeds were dibbled in Periodic Block, 1929. The germination of rosewood was not satisfactory.

Pollachi range.—An area of 5 acres in Gudaravalli fuel coupe VIII was dibbled with teak seeds in patches where heaps of brushwood and rubbish left after felling were burnt. Subsequently Neem seeds were broadcast in the same area. In spite of casualties due to trampling by wild elephants teak seedings are coming up well. Neem seeds were husked and the pulp eaten by wild rats, squirrels and birds. None of them germinated.

Madura.—Artificial regeneration was carried out in the Vannathiparai area and the result is detailed in Chapter VI.

Tinnevelly.—Forty-six measures of teak and four of tamarind were sown by subordinates free of cost in coupes IX and X of Ayyanarcoil felling series. Seedlings germinated but subsequently died.

(*c*) Afforestation.

34. *South Coimbatore*.—Twenty-seven rosewood trees were root wounded in Periodic Block, 1929, Punachi Timber Working Circle. Of these, 23 have sent forth root-suckers. In compartment 5, the area to be felled in 1930–31, 42 trees were root wounded.

Tinnevelly.—Experimental sowing of the following species was done under the scheme of two years planting in the Kudiramoliteri reserve :—(1) 478,500 palmyra nuts were dibbled in Nadu Teri

series No. V over an area of 1,100 acres in seven compartments at a cost of Rs. 2,571 ; (2) 58,725 palmyra nuts were dibbled by lessees over an area of 135 acres. The dibbled nuts germinated about December 1929.

(iii) *Plantations and other forms of regeneration not under working plan or scheme.*

35. *Madura.*—The plantations already formed were maintained. A sample plot of one acre was laid out in coupe XVIII, Veeramalai, and the area was run over with a plough twice. One and a half measures of Seethai and 4½ of Usil were sown during the rains at a cost of Rs. 5. The seedlings are growing well all over the plot, the height being from ½ foot to 1½ feet.

36. *Other forms of regeneration not under working plan or scheme—Kollegal.*—Steps are being taken to introduce sandal in localities where it does not exist by dibbling seeds on stream banks and other favourable localities in small beds of 10 ft. by 10 ft. The rate of growth is very slow.

North Coimbatore.—Sandal seeds were dibbled in small plots and the results are encouraging in five beats of Satyamangalam range, fair in Talamalai and very satisfactory in Bhavani range. But in the last range owing to prolonged drought very few plants survived in the patches dibbled. These areas will be redibbled in 1930–31. Sandal seeds were dibbled in 10 acres in Geddessal 15 feet apart in two plots. There are about 300 seedlings. The experiment is not a success and damage by rats was noticed.

Madura.—An enumeration of previous year's sowings showed that 556 seedlings are surviving.

Tinnevelly.—Sandal seeds were sown in separate plots. Seeds of different species were dibbled over an area of 10 acres in Valliyur reserved forest at a cost of Rs. 17-8-0, and in 10 acres of the Vallanad Reserved Forest coupe V. The result is unsatisfactory.

(iv) *Tending.*

North Coimbatore.—Tending of sandal and creeper-cutting was done in Kunjapanai, Kandiyur and Constantia reserves at a cost of Rs. 120. The results are satisfactory and trees and seedlings show signs of healthy development and growth. The canopy over existing sandal was removed at a cost of Rs. 10 in the regeneration sandal plots at Geddessal.

South Coimbatore.—The prescribed weedings in the regeneration areas of Tunacadavu range and tendings in compartments 2, 7, 8, 14-*b*, *c*, *d* and in Periodic Block I of 1926—28 of Punachi Timber Working Circle were carried out as usual. Weeding and climber-cutting in the worked fuel coupes of 1928–29 were done

and the results are satisfactory. Weeding around coppice shoots to a radius of 2 feet in coupes VII and IX of Amaravathi Fuel Felling Series and coupe X of Kamanuthu was done. In coupe IX of the felling series, as an experiment, burning all rubbish and cutting back coppice shoots over an area of 15 acres was tried. Rupees 37-8-0 was spent in freeing sandalwood trees over an area of 100 acres in Yelumalayankoil.

Madura.—Rupees 50 was spent in two ranges in tending sandal and Rs. 25 in tending vagai over an area of 17 acres in Vannathiparai.

Tinnevelly.—The teak plantations of 1907 at Kariar and 1917 at Kodamady were thinned at a cost of Rs. 24 and Rs. 76 resulting in the removal of 506 teak poles which were sold for Rs. 247. The soil round teak plantations at Mundanthorai was aerated and mulching was done with cut grass at a cost of Rs. 35. Uprooting of grass round the dibbled patches of coupe XXVIII Padarmalai plantations was done in 5 acres at a cost of Rs. 25. Teak plants damaged by sambhur in some of the younger plantations were cut back before the north-east monsoon of 1929.

(v) *General.*

37. *Madura.*—Creeper-cutting was carried out by subordinates free of cost.

Section 2—Tending of the growing stock.—In *North Coimbatore* Rs. 205 was spent in tending sandal over an area of 570 acres.

CHAPTER IV.—EXPLOITATION.

System of Management.

(*a*) *Major produce.*

38. The area under working plans including the temporary schemes was 2,248 square miles and the various silvicultural systems in force are noted below :—

	Area in square miles.	Percentage to the total area under working plans.
Selection method	323	14
Simple coppice	751	34
Coppice with standards	136	6
Unworked or other fellings	1,038	46
Total ...	2,248	100

Extraction of sandalwood in *Kollegal, North Coimbatore* and *Tinnevelly* was confined to dead trees. In the case of bamboos

which flowered in *North Coimbatore* silvicultural restrictions were removed. Fuel forests in Kodaikanal range for which a scheme is under consideration were worked under the simple coppice system.

(*b*) *Minor Forest Produce.*

39. *Kollegal.*—Bamboos were as usual leased to contractors and where no contractors came forward the coupes were worked under the controlled permit system. Removals of dead bamboos on permits were allowed to minimise the risk from fire. All minor produce was leased out. For want of bids in one range the right to collect konnai and somai bark was postponed to 1930-31.

North Coimbatore.—All bamboo coupes were leased with the exception of a small area in the Nilgiri eastern slopes for which permits were issued departmentally. Minor produce was leased as usual. There was no demand for stone and tree moss, vembadam and konnai bark in Bhavani range and soapnut, honey, wax, sheekoy and horns in Satyamangalam range.

Minor produce and bamboos in other districts were leased as usual.

40. *Grazing.*—This was as usual controlled by permits. Orders for the abolition of grazing block in Mettupalaiyam range in *North Coimbatore* were received during the year. They were given effect to from 1st July 1930.

Fodder grass in *North Coimbatore* except in Mettupalaiyam range was leased out. In *Kollegal* Rs. 7-6-6 was collected by issue of permits and the small receipt is accounted for by the fact that the ryots prefer to drive their cattle into the forests to cutting grass and stall feeding. In Tinnevelly fodder grass was included in minor produce.

Agency of Exploitation.

(i) *By Departmental Agency.*

41. *Major produce.*—Timber and sandalwood continued to be extracted departmentally. In *South Coimbatore* timber from the forests of the Mount Stuart and Punachi Working Circles was extracted departmentally and carted to Pollachi depot for sale. Some of the timber from the former was sawn into sizes at the saw mill at Topslip and then carted to Pollachi. Top ends of trees were converted into spokes and felloes and sold either at the forest depots or carted to Pollachi. The saw mill at Topslip was closed in December 1929 as it could not be worked at anything but a loss. In respect of timber from the Punachi Timber Working Circle only selected logs were sent to Pollachi and the rest were dragged to

roadside and sold in the forest. Brake poles were as usual cut and supplied to cartmen on the Anamalai Ghaut road, from the Punachi area. In *Tinnevelly* 75 trees of 11 shola species were felled from an experimental plot at Kannikatti converted into useful sizes and sold. The total quantity of saleable timber obtained was 4,766 cubic feet. Thirty Mesua trees were felled and converted into 251 broad gauge and 160 meter gauge sleepers for supply to the railway.

42. *Minor produce—In South Coimbatore.*—Ivory is the chief item of minor produce and was sent to the Forest Utilization Officer for sale. In some divisions bamboos, thatch grass and seeds required for departmental use were collected.

(ii) *By purchasers.*

43. *Major produce.*—Fuel coupes were leased as usual to contractors except in some cases in *Kollegal* where coupes could not be sold and these were worked under the regulated permit system. In *South Coimbatore* in Punachi range 4,369 cubic feet of timber was sold standing at seigniorage rates.

44. *Minor Forest produce.*—Bamboos and minor produce were leased out to contractors. Two bamboo coupes that could not be sold in *Kollegal* and a small area in Nilgiri eastern slopes were worked under the regulated permit system.

45. *By right and privilege holders.*—The quantity and estimated value of the different kinds of produce removed is shown in the following statement:—

——	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos in value.	Grazing value.	Other minor produce in value.	Total.
		Rs.			Rs.	Rs.	Rs.	Rs.
Right and privilege holders.	..	..	..	..	..	1,689	612	2,301
Free grantees ..	39 475 palmyras.	3,144	..	..	14	..	97	3,255

Cattle up to 30 in number belonging to a temple in grazing block II of Udamalpet range in *South Coimbatore* were allowed to graze free. The Pulayars of Thalinji in *South Coimbatore* were allowed to cultivate 33 acres according to rights at settlement. The right to free grazing in the Ampthill downs reserve in *Madura* was continued and the number of cattle admitted was 6,213.

46. *By free grantees.*—The free grants made were chiefly for rebuilding houses destroyed by fire.

47. *Outturn and sources of forest produce.*—The attached statement shows the total outturn of major and minor produce from all classes of forests by all agencies during the year as compared with that of the previous year:—

Agency of exploitation.	Timber and sandalwood in thousands of cubic feet.		Fuel in thousands of cubic feet.		Bamboos in value.		Minor produce including grazing.	
	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.
					Rs.	Rs.	Rs.	Rs.
By Government Agency.	208	165	409	97	4	9	612	1,272
By purchasers ..	423	325	2,879	3,318	38,795	36,217	2,67,164	2,42,317
By right and privilege holders.	..	..	..	..	.	..	1,854	2,301
By free grantees ..	17	29	..	..	8	14	423	97
Total ..	648	519	3,288	3,415	39,807	36,240	2,70,053	2,45,987

48. *By Government Agency—Timber.*—The excess in 1928-29 was due to increased quantity of timber felled in the Mount Stuart Working Circle to feed the saw mill, to working of arrear coupes in Punachi Timber Working Circle, and the outturn from the Kannikatti experimental plot in *Tinnevelly*.

Fuel.—The increase in 1928-29 was due chiefly to departmental working of three fuel coupes in *Tinnevelly* and one in *South Coimbatore*. The large outturn from indicator areas in *South Coimbatore* also partly accounted for the increase.

Minor produce.—The increase is due to a greater quantity of elephant tusks collected and sold.

49. *By purchasers—Timber.*—The decrease was chiefly under reserved lands which is an uncertain source of revenue depending on the area containing tree growth granted on darkhast. There was also a decrease under reserves due to stopping of collection of dead trees in *Madura* until a working plan is prepared.

Fuel.—The increase was due to the large outturn from fuel coupes in all districts and partly to working of four fuel coupes on contract which were worked departmentally in 1928-29.

Bamboos.—The decrease was due to flowering of bamboos.

Grazing and minor produce.—The decrease was partly due to cattle mortality in *Tinnevelly, Kollegal* and *North Coimbatore* and partly due to poor crops in minor produce in two ranges of *North Coimbatore*. The closure of four grazing compartments and Vallanad reserve (for part of the year) partly accounted for the fall.

50. *Free grants.*—The free grants were made chiefly for rebuilding of houses destroyed by fire.

CHAPTER V.—FINANCIAL RESULTS.

51. The following statement shows the financial position of the year under report compared with that of the previous year :—

NON-COMMERCIAL.

Receipts.

	1928-29. RS.	1929-30. RS.
Revenue including Valparai sleeper project	11,52,761	12,41,841
Deduct—Refunds	9,070	4,457
	11,43,691	* 12,37,384

Expenditure.

(*b*) Conservancy and works including Capital Outlay and Valparai sleeper project	2,07,773	2,66,400
(*c*) Establishments	3,66,001	3,84,629
	5,73,774	6,51,029

COMMERCIAL.

Revenue	1,96,550	† 2,02,936
Expenditure on works	1,44,674	1,18,384
Establishment	20,181	40,339
Interest and saw mill working expenses ...	...	49,993
	1,64,855	2,08,716

Of the gross receipt, 67 per cent was derived from the major produce, 13 per cent from the minor produce, 10 per cent from grass and grazing and 10 per cent from miscellaneous items. Of the expenditure 32 per cent was incurred on exploitation, 16 on upkeep and improvement and 52 per cent on miscellaneous items.

RECEIPTS.

52. *Non-commercial.*—The increase was mainly due to—

(1) greater quantity of sandalwood extracted and sold in *Kollegal* and better prices realized at the auction;

(2) increased sales of sleepers from Valparai sleeper project and partly to adjustment in 1929-30 of Rs. 2,298, the cost of sleepers got ready in *Tinnevelly* in 1928-29.

* Includes Rs. 3,088 relating to VI Circle and Rs. 490 realized by the Forest Utilization Officer and excludes Rs. 5,769 relating to *Tinnevelly* realized in the IV Circle. The net revenue is therefore Rs. 12,40,065.

† Includes Rs. 11,263 being the valuation of stock of timber.

(3) under 'Forest department—Firewood' to better prices realized for fuel coupes in *Madura* and *Tinnevelly*.

Commercial.—The increase in receipts is mainly due to the valuation of stock of timber.

EXPENDITURE.

53. 8 (*b*) *Conservancy and works and* 52-*A*—*Capital Outlay.*—The increase was mainly under the following heads :—

Timber removed by Government agency.—Due to inclusion of expenditure incurred in Valparai sleeper project for the extraction of sleepers for the first time in the circle accounts.

Sandalwood.—Due to larger quantity extracted in *Kollegal* and to payment of compensation for patta sandalwood in *North Coimbatore*.

Roads and bridges—New works.—Due to construction of Ayyalur-Thoppaswamimalai road and extension of Mulayur road in *Madura* district.

Buildings—New works.—Due to construction of subordinate lines at Ponnachi and Thamarakerai in *Kollegal*.

54. (*c*) *Establishment.*—The increase is mainly under Pay of officers—Non-voted—Pay of establishment—Voted and Travelling Allowances—Voted and Non-voted and also due to inclusion of expenditure incurred under Valparai sleeper project in the Circle accounts for the first time.

The revenue outstanding at the end of the year was Rupees 2,84,472-8-8 of which Rs. 6,238-1-3 fell due within the year. The estimated value of timber and other produce at sale depots at the end of the year was Rs. 54,929 against Rs. 32,823 at its commencement.

The financial results of each district are dealt with below taking into account the direction charges apportioned to the divisions :—

KOLLEGAL.

	1929-30.	1928-29.
	RS.	RS.
Receipts	2,38,653	2,04,169
Charges	1,08,223	93,526
Surplus	1,30,430	1,10,643

Receipts.—There has been an increase of about Rs. 34,480 in the receipts from all items except under grass and grazing and under miscellaneous. The increase is due to larger quantity of sandalwood extracted and sold. There have also been increases under timber and fuel, due to villagers resorting to agricultural

implements and fuel coupes for their requirements, under bamboos due to keen competition and under minor produce due to realization of the previous year revenue in 1929-30. The decrease under grazing is due to cattle mortality in Kollegal and Ramapuram ranges on account of rinderpest and foot-and-mouth disease, and under miscellaneous due to fall in compounding fees collected.

Charges.—The increase is due to larger quantity of sandalwood extracted, construction of two subordinate lines and completion of one incomplete building work and to holding the Vernacular Training School in the division and to the posting of an Assistant Conservator and a Supernumerary Ranger for checking agreement sandalwood trees.

NORTH COIMBATORE.

	1929-30. RS.	1928-29. RS.
Receipts	3,37,889	3,79,361
Charges	1,18,399	1,18,059
Surplus	2,19,490	2,61,302

Receipts.—There has been a decrease of about Rs. 41,470 mainly under the following items:—

(1) *Sandalwood.*—Due to extraction of a smaller quantity and to a balance of about 8 tons remaining unsold.

(2) *Timber.*—Due to stoppage of extraction of timber from Karaipalaiyam.

(3) *Purchasers—Firewood and charcoal.*—Due to want of demand for fuel coupes from Mettur project.

(4) *Bamboos, grazing, and minor forest produce.*—Due to flowering of bamboos and prevalence of cattle disease, and poor crop in minor forest produce in two ranges of the district.

(5) *Other sources.*—Due to payment of part of the contribution by the District Board for maintenance of roads after the close of the year and to compounding fees realized being less than in 1928-29.

Charges.—The increase is slight. There was an increase under sandalwood mainly due to payment of compensation for patta sandalwood but this was partly compensated by decrease under roads and buildings and under supplies and services as no refund of grazing fees was made to the panchayats of Mettupalaiyam range.

SOUTH COIMBATORE.

	1929-30. RS.	1928-29. RS.
Receipts including Valparai sleeper project	2,20,547	1,92,897
Charges	1,95,953	1,36,572
Surplus	24,594	56,325

Including the figures for the commercial concern for which audit report has not yet been received, the position is—

	1929-30. RS.	1928-29. RS.
Receipts	4,23,483	3,89,447
Charges	4,04,669	3,01,427
Surplus	18,814	88,020

Receipts.—Compared with last year's receipts the non-commercial unit shows a fall of Rs. 25,569 and the difference occurs under the following main units :—

Timber.—Due chiefly to timber carted from Punachi not being adjusted yet by the Mount Stuart commercial concern.

Firewood.—Due to the sale of fuel from regeneration areas in Tunacadavu range and to working of a fuel coupe departmentally in 1928-29. Revenue from indicator area is being credited to firewood (Forest department).

Bamboos and grazing.—Due to lack of demand for some of the bamboo coupes and cattle mortality.

Rents of buildings.—Due to recovery of arrear rents of buildings in 1928-29.

Charges.—Compared with last year the charges show a decrease of Rs. 26,987 and the difference occurs under the following main units :—

Firewood.—Due to working of a coupe departmentally in 1928-29.

Roads.—Due to adjustment of the half-share of the capital cost of the Mount Stuart ghaut road in 1928-29 to general forests. Adjustments for 1929-30 in respect of the expenditure incurred by the Mount Stuart commercial concern remain to be adjusted.

Commercial unit.—The finance statement shows that the Mount Stuart commercial concern worked at a loss of Rs. 5,780 against Rs. 20,492 in the previous year. The improved position in the current year is due to the abolition of the saw mill in December 1929. The accounts for the year 1929-30 are under audit.

MADURA.

	1929-30. RS.	1928-29. RS.
Receipts	2,50,815	2,08,985
Charges	1,35,615	1,27,245
Surplus	1,15,200	81,740

Receipts.—The increase is mainly due to better prices obtained for fuel coupes.

Charges.—The increase is mainly due to the construction of Ayyalur-Thoppaswamimalai road and extension of Mulayur road and to a senior officer being in charge of the district throughout the year.

TINNEVELLY.

	1929-30.	1928-29.
	RS.	RS.
Receipts	1,72,194	1,54,953
Charges	92,365	1,02,971
Surplus	79,829	51,982

Receipts.—The increase is due to high prices offered for the fuel coupes and minor forest produce sales and to inclusion of Rs. 2,298, the cost of sleepers got ready in 1928-29 and adjusted in 1929-30.

Charges.—The increase in 1928-29 was due to the exploitation and conversion of shola species in evergreen forests by the Assistant Working Plan Officer. There was a decrease under establishment due to reduction of staff of foresters from 12 to 9 and of forest guards from 59 to 55.

TANJORE.

	1929-30.	1928-29.
	RS.	RS.
Receipts	19,967	12,032
Charges	2,917	1,771
Surplus	17,050	10,261

Receipts.—The increase is due to increased revenue obtained from Miscellaneous—Other sources, and to better prices realized for minor forest produce.

Charges.—The increase is due to inclusion by the Accountant-General of Rs. 1,200 under ' Pay of Officers—Voted.'

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

55. As a result of the Spike Conference in July 1929, at Bangalore, an ecological survey has been carried out in two plots in *Kollegal*. Observations are being recorded every month. To ascertain the period of occurrence of the heaviest incidence of spike, a newly spiked area with 400 sandalwood trees, healthy and spiked, was selected in Kollegal and monthly observations are being made.

In order to observe the spread of spike to neighbouring areas, 400 sandalwoods have been marked and kept under observation in Burliar in *North Coimbatore*.

As a preliminary to the introduction of lac, the Deputy Forest Utilization Officer pruned *Zizzphus jujuba*, *Butea frondosa* and *Schleichera trijuba* at Hassanur in *North Coimbatore*, and the last-named species also at Vannathiparai in the *Madura* district.

Experiments—Kollegal.—The *Acacia dealbata* poles of 1921 are growing well. From the last year's sowing in 20 beds there are 912 seedlings. During the year *Acacia dealbata* and *decurrens* seeds were sown in 16 beds and there were 537 seedlings at the close of the year.

In addition to the usual dibbling of sandal seeds in 10 ft. by 10 ft. plots in suitable localities, seeds were sown under bushes in two plots of an acre each at an elevation of 3,000 feet. Germination was good. In another area, at an elevation of 2,000 feet, three other plots of one acre each were selected in open scrub jungle and seeds were sown. The percentage of germination in the latter areas was not so good.

South Coimbatore—Adina experimental plot below the Mount Stuart bungalow.—This plot required no treatment during the year. All the teak is well above the Adina and is not too closely spaced. The Adina forms a dense thicket and is being left, for the present, to thin itself.

Punachi range—Vengai sample plot, 1 acre.—This plot contains seedlings of more than four years. It is maintained to record measurements and percentage of survivals of seedlings when tended and when untended. Eight sholas in the Grass Hills continued to be fire-protected to ascertain the effect on the extension of sholas by rigid fire-protection.

The lantana and evergreen thickets were burnt in Periodic Block I of 1927 to encourage natural regeneration of valuable species.

Madura.—In the experimental plots at Vannathiparai, the operation prescribed in the working scheme was continued by replacing casualties and weeding whenever necessary. The result

of enumeration of seedlings made in March 1930, is given below :—

Species.	Regeneration.				Natural Regeneration.			
	Plot No. I.		Plot No. II.					
	Natural.	Artificial.	Natural.	Artificial.	Plot No. III.	Plot No. IV.	Plot No. V.	Plot No. VI.
Rosewood ..	524	333	225	65	538	140	191	150
Vagai	444	189	335	76	112	166	228	77
Adina	258	..	34	..	30	16	84	15
Melia	80	..	23	..	4	21	66	..
Vengai	..	242	..	9	..	..	..	..
Teak	..	287	..	128	..	..	..	..
Stereospermum ..	..	..	..	..	4	16	266	250
Stephegyne ..	..	..	..	..	..	1	199	..

NOTE.—Plots III to VI no artificial regeneration is prescribed.

Coupe I—5 acres.—Seeds were sown, from 1st June 1928 to 10th June 1928, 6 feet apart at stakes. Casualties were replaced in the same year in October from dumps or stakes having more than four seedlings. Casualties were again replaced in May 1929 and weeded. The stocking would have been complete but for a herd of elephants which passed over the area in September 1929, December 1929, and January 1930. Saplings 2 years old from 10 feet to 15 feet high were all broken and several seedlings of various species trampled down. The result of enumeration in March 1930 showed that 4,243 seedlings of various species were surviving.

Coupe II—5 acres—Regenerated in 1929–30.—This coupe was damaged by elephants and casualties are many. The result of enumeration in March 1930 showed that 4,441 seedlings of various species were surviving.

There is a narrow strip of low lying ground running through all the patches. Teak, rosewood, vagai, and vengai were sown in lines here, and the number of survivals are teak 154, rosewood 113, vengai 84, vagai 187.

Aini.—Seedlings are healthy but the growth is poor.

Tinnevelly.—The following seeds were sown in Kudiramoli Teri reserve :—

Species.	Area in acres.	Result.
10 measures of virali ...	5	Has done very well. Very useful as a fore-runner on areas not firm at present.
2,175 cashew nut ...	5	Very satisfactory.
56 measures of *Acacia planifrons.*	10	156 seedlings over 3 inches.
Tephrosia candida and *B. Hispida.*	10	Not reported.

Experiments conducted by the Assistant Working Plans Officer, Kannikatti.

Silvicultural experimental work at Kannikatti in 1929–30—*Nursery work.*—During the year, both shola and open nurseries were extended and fifteen evergreen species were sown.

Mesua seed germinated and ungerminated was severely attacked by animals. The damage was checked by putting a strong fence round the beds. The attack began to extend to other species and therefore all the beds were fenced.

Mesua has done well in both nurseries and there are now 25,000 seedlings in stock, enough to plant out in gaps, in a coupe ten times the size of the present one. Open nursery Mesua seedlings are taller, tougher and have more leaves but narrower and paler than those of the shola nursery. *Gluta, Aglaia, Dichopsis, Balanocarpus* germinated well, *Filicium* and mahogany fair; and *Chickrasia,* in beds poor, but in baskets good. Toon and *Bischofia* gave very poor percentage. *Calophyllum, Dipterocarpus bourdilloni* and ' Kauri ' failed. The Australian Hoop-pine has given about 10 per cent germination and the seedlings are 3 inches high with roots up to 10 inches. One bed was attacked by some root grub and hence all the seedlings of that bed were transferred to baskets. There are about 800 seedlings of Hoop-pine and they will be further experimented with.

Hardwickia pinnata seeds, put in running water at nights, in a bag, and exposed to the hot sun during days, for a fortnight, gave 12 per cent germination as against 2 to 5 per cent of untreated seeds.

Pit heap germination gave excellent results. In the case of Mesua and Gluta up to 80 per cent.

For a successful evergreen nursery, collection of ripe seed in time is of the utmost importance and fencing and constant supervision are imperative.

Regeneration of gaps created in the coupe by the removal of marked trees and regeneration experiment in the shola forests under normal conditions.—Acrocarpus seed, the species ordered to be tried, was not available, from any of the local ranges. About a pound of seed was procured from the Forest Research Officer, and this was enough for gaps in one strip. Gluta being available in a gap about which the present knowledge is so little, and because in large quantities, it was dibbled in the majority of the gaps. Several species have been dibbled or planted in a fair number of gaps, the idea being not to depend upon any one particular species it may fail entirely.

At the same time that the gaps were taken up, seventeen experimental plots, on small scale, were opened in the shola forest to ascertain the silvicultural requirements of the important species and how best to introduce them in the forest.

From both experiments, it was found that, dibbling and notching germinating seeds of Mesua, *Balanocarpus*, *Dichopsis* gave excellent results, especially by notching. But soon the seeds were attacked, by some animals, believed to be porcupine, pigs, rats and mousedeer. Whatever the animals were, they went from peg to peg and unearthed seeds and destroyed the seed and the seedlings. Therefore planting had to be resorted to in these cases. Even in planting it was found that *Dichopsis* and *Balanocarpus* seedlings, a few weeks old gave poor results because at that age the cotyledons were intact. In the case of Mesua 1½ months old the seedling had dropped its cotyledons and it was successfully planted out in the south-west monsoon. The survivals at the end of this hot weather shows 78 per cent success from the open nursery seedlings and 61 per cent from the shola nursery. In the case of 4½ months old seedlings put in, in the north-east monsoon in the gaps, the survivals show 45 per cent and 72 per cent success. Dichopsis seedlings a few weeks old were planted out with their cotyledons clipped with a pair of scissors, before planting in January 1930 and the survivals at the end of the hot weather show 38 per cent success as against 32 per cent of older seedlings put in, much earlier. If the clipping had been tried earlier, so that the seedlings could have had the full benefit of the north-east monsoon, the results would have been better.

Poeciloneuron planting gave 50 to 74 per cent success in gaps and 67 per cent in the shola. Transplanting of *Eugenia*, *Hardwickia*, *Dysoxylum beddomeii*, *Elæodendron* in the shola, have shown 86 per cent, 46 per cent, 80 per cent and 30 per cent success respectively. *Dysoxylum* was planted out in baskets and hence the high percentage of success. Dibbling of *Elæodendron* and *Hardwickia* gave only 5 to 7 per cent and 8 per cent success respectively.

Aglaia dibbled in the north-east monsoon in the shola gave 78 per cent and dibbling and planting in the gaps gave 60 and 74 per cent success.

Dibbling of mahagony, Toon and Chickrasia in the gaps have given 58 per cent, 10 per cent and 10 per cent success respectively. As this dibbling result was poor in the case of Toon and Chickrasia, basket-planting was done in November 1929 and there are over 90 per cent survivals. A few Toon are up to 1 foot, Chickrasia 1½ feet at one year old.

Acrocarpus dibbled in May 1929 in gaps of one strip only gave only 5 per cent success; but even so there are enough seedlings in each gap, although often browsed down. A few are up to 1½ feet at one year. Basket plants of Acrocarpus were planted out in the north-east monsoon and at the end of the hot weather showed over 90 per cent success and the seedlings are healthy and a few are up to 2 feet. The poor success in dibbling in May 1929 was due to premature collection of seeds, as this year's dibbling in coupe II with seeds collected at the right time has given over 70 per cent success. Treated seeds have given over 90 per cent success in patches. Hence there is no need for transplanting this species in future.

Hoop-pine dibbled in gaps in October 1920 gave 30 per cent success but soon the seeds were attacked and both germinated seeds and ungerminated were destroyed.

Calophyllum and the Australian 'Kauri'.—Dibbling in the gaps entirely failed.

Gluta dibbled gave 60 to 70 per cent success and notching germinating seeds gave 80 per cent success. Seedlings are up to 1 foot in height and vigorous. It is one of the easiest, to raise by dibbling. Broadcasting also has given fair results.

The regeneration of gaps has not cost more than Re. 1 to the acre but then a good deal of work was done free by the special duty guards.

From the above results it is seen that regenerating the gaps by dibbling and planting does not appear either to be difficult or expensive.

Natural regeneration plots.—To study the effect of different degrees of opening the canopy over regeneration maintained. When heights are recorded again this August, there will be some indications.

Flowering and seeding.—Information regarding the time of flowering and the right time and method of collecting seeds has been collected in the case of 50 species. Ripe seed must be collected in time, if any appreciable success is to be obtained with evergreen species. A delay of ten days in collecting the seed has resulted in getting no seed at all in some cases.

Experiments in germination with treated seeds.—Germination tests were carried out with seeds, treated with strong sulphuric acid, seeds boiled in water for five minutes, soaked in cattle manure solution for 24 hours. Acid treatment gave the best results. *Acrocarpus* gave 48 per cent, *Chickrasia* 4 per cent, *Cassia Siamea* 96 per cent success.

CHAPTER VII.—ADMINISTRATION.

56. Mr. T. A. Whitehead held charge of the Circle throughout the year.

Changes in the territorial jurisdiction.—Nil.

57. *Health of the establishment.*—Continued to be good in *Tinnevelly* except the Kannikatti range, fair in *Madura* and *South Coimbatore* and not satisfactory in *Kollegal* and *North Coimbatore* where several subordinates had to be granted leave on grounds of ill-health for varying periods.

Casualties.—One range peon died of snake-bite in *Kollegal*, one ranger died of fever in *North Coimbatore*, one forester was found dead near the Palni-Dindigul Railway line in *South Coimbatore* and one guard died of fever in *Madura*.

58. *Sanitation—South Coimbatore.*—A sum of Rs. 625 was spent in clearing round residential quarters at Topslip as an anti-malarial measure.

59. *Tours.*—The Mount Stuart forests were inspected by the Chief Conservator of Forests, Inspector-General of Forests and the Chief Forest Engineer. The Conservator toured in all the divisions of the Circle spending more than six months in camp and issued inspection notes on all the forests inspected except *Madura*. All the District Forest Officers spent more than the prescribed minimum in camp.

60. *Inspection of District Forest and Range offices.*—The Conservator of Forests inspected all the District Forest offices in the Circle and the result was on the whole satisfactory though there is room for improvement in *North Coimbatore*, *South Coimbatore* and *Madura*. A final report on the defalcation in *Madura* was submitted to Chief Conservator of Forests in August 1929, and it disclosed that a sum of Rs. 1,592 was embezzled by the clerk who was sentenced to one year's rigorous imprisonment. The head clerk has been chargesheeted for gross neglect of duty by the Collector of Madura.

The District Forest Officers inspected all the Range offices in their districts and the result was generally satisfactory except in Kodaikanal range.

61. *District Forest Officers' accounts—Inspection.*—Audit staff of the Accountant-General's office inspected the accounts of all the divisions except *South Coimbatore* and the result was reported to be satisfactory. The accounts of the Mount Stuart commercial concern were audited by the staff of the Assistant Director of Commercial Audit for the half-year ending 30th September 1929 and for the year 1928-29.

62. *Madras Forest College.*—No one was deputed to the college during the year for 1929—31 course.

63. *Vernacular Training School.*—The 1929-30 session of the Vernacular Training School was in *Kollegal* from 1st August 1929 to 31st March 1930, with Messrs. M. R. Doraiswami Ayyar, Ranger, V Grade, and S. Narayanaswami Ayyar, Supernumerary Ranger, as Senior and Junior Instructors. Twenty-eight students (2 foresters and 26 guards) were trained, of whom 8 secured first class and the rest second class certificates. The students' health, conduct and discipline were satisfactory.

CHAPTER VIII.—GENERAL.

(1) Formation and Management of Panchayats.

64. Orders to revert to the system of issuing permits by permit-issuing officers in the grazing panchayats of the Mettupalaiyam range, *North Coimbatore district* issued in Chief Conservator's Proceedings Rt. No. 414, dated 29th September 1929, were given effect to from 1st July 1930. Akkurjorai reserve in *North Coimbatore district*, 948 acres in extent, was transferred from class III to class I owing to good growth of sandal.

(2) Measures for improving local supplies and facilities.

65. Except in two ranges in *Tinnevelly*, no leaf *manure* was removed from the reserves, the revenue realized thereby being Rs. 3,132 against Rs. 1,977 in the previous year. Mr. Morris of Honnimetti estate was permitted to remove dry leaves in the Bellaji shola in *Kollegal district* on payment of one anna per headload; the amount so collected amounted to Rs. 100.

Supply of fuel and agricultural implements—Kollegal.—The fuel coupes were, as usual, worked on the controlled permit system, as there were no bids for them in the auction.

North Coimbatore.—The requirements of villagers were, as usual, met from unreserves and coupes leased to contractors.

South Coimbatore.—Spokes and felloes cut from the top-ends of trees felled departmentally from timber working circles were sold in auction. Brake poles were also cut and sold departmentally on the Anamalai Ghat Road for the use of cartmen. An agricultural implement coupe was newly opened for the benefit of the villagers and was worked on controlled permit system.

Madura.—The demand of villagers was as usual met by the contractors from coupes leased to them.

Tinnevelly.—The demand was met from unreserves and the supply of fuel is reported to be sufficient.

(3) IMPROVEMENT OF WATER-SUPPLY IN GRAZING GROUND.

66. Two tanks in *North Coimbatore* were repaired at a cost of Rs. 144, and two springs in *Madura* were improved at a cost of Rs. 243-10-0. The latter are reported to have been much used by the ryots and cattle.

Timber Transit Rules.—The rules are reported to have worked satisfactorily. In *North Coimbatore*, the rules were revised to include additional areas and to provide additional checking stations. These received the assent of Government after the close of the year.

Sandalwood Transit Rules.—The memorial prepared by Khazi Syed Yusuff Saib Bahadur and referred to in the last year's report was rejected. Revision of the rules in *North Coimbatore* is still awaiting the sanction of Government.

67. *Jungle tribes.*—The jungle tribes were employed in the same way as in previous years. In *Kollegal* about 5 families have come and settled near Bailur. In *Tinnevelly* arrangements are being made for a settlement in Kannikatti range where labour is scarce.

68. *Mining and quarrying.*—There was no alteration in the rules except that other departments of Government and local bodies are charged for quarrying in forest areas.

69. *Cultivation in reserved forests.*—The disreservation of the Honnametti estate in *Kollegal* for assignment on ryotwari patta has not been completed. Hence the estate is continued to be held on lease.

70. *Livestock*—(i) *Elephants—South Coimbatore.*—There were 21 *elephants* at the commencement of the year, 13 were captured, thus making a total of 34. Of these two escaped, one was released being an old female elephant, one died while under training, one was shot due to injury caused at the time of fall being found incurable and three were handed over to the lessor, thus leaving 26 at the close of the year. The estimated value is Rs. 67,600. An elephant which fell into the pit escaped before capture.

(ii) *Other animals.*—Nil.

71. *Veterinary Assistant.*—The elephants were in charge of the Assistant Veterinary Inspector and inspected by the Inspector of Livestock from 17th to 29th July 1929. The health of the elephants continued to be fairly satisfactory.

72. *Civil suits—Madura.*—The second appeal filed in the High Court against a fuel coupe contractor and referred to in the last year's report was dismissed with costs. But the contractor has

preferred an appeal to the Full Bench of the High Court declining to pay the amount due with interest and costs. This has been sent to the Collector for action.

Tinnevelly.—The compensation suit appeal in respect of a portion of the disforested portion of the Teri reserve is still pending in the Sub-Court, Tuticorin. Execution proceedings in another suit for recovering the advance outstanding against a sawyer were stopped as the respondent died and the joint respondent is a pauper.

73. *Control of unreserved lands by the Forest department.*—Besides the area specified in the last year's report in *Kollegal*, the right of felling the stock in an area of 542 acres in *South Coimbatore* in the Andigoundanur village is in charge of the department. The lease is for three years from 1929-30.

ENCLOSURE.

REPORT ON EACH FOREST DISTRICT, 1929–30.

KOLLEGAL.

Description.—The forest division covers the hills and plateaux of the Kollegal and Bhavani taluks of the Coimbatore district. The forests are of a poor, open, deciduous type with an undergrowth of thorns, but support a very valuable stock of sandalwood at elevation between 2,000 feet and 4,000 feet.

On the west the Biligirirangan mountain and on the north and east Cauvery form the natural boundaries of the division. To the south lies the North Coimbatore Forest division. There is good grazing available throughout the division.

Area.—Nine hundred and forty-seven square miles.

How the forest district is split up into subordinate administrative charges.—The whole division is divided into three ranges consisting of 49 beats.

Names of ranges with headquarters—

Ranges.	Headquarters.
Kollegal	Kollegal.
Ramapuram	Cowdalli.
Bargur	Thattakerai.

Cost of administration—

	Rs.
Pay of officers	11,700
Rangers	6,713
Subordinates staff	21,451
Clerical staff	6,340
Menials	499
Temporary staff	920
Allowances	15,279
Contingencies	3,593
Total ...	66,495

Cost under other important heads—

8. (*b*) Forest Conservancy, Maintenance and Renegeneration—

	Rs.
(i) Sandalwood	7,512
(ii) Timber and other produce removed by consumers and purchasers	10,341
(iii) Renewals and replacement of stores ...	100
Roads and bridges	5,390
Buildings	1,895
Other works	72
(iv) Fire-protection	737
Other works	327
(v) Miscellaneous	92
Total ...	26,466

52-A. Capital—

Purchase of stores	183
Demarcation	271
Buildings in progress	505
New works	4,850
Other works—New works	52
Total ...	5,861
Grant Total ...	98,822

Income from main sources—

By Government agency—

	Rs.
Sandalwood	1,55,525
Timber and firewood	12
By private agency—	
Timber	2,660
Firewood	4,520
Bamboos	9,237
Grazing	47,192
Minor produce	6,251
Miscellaneous (including driftwood)	9,353
Receipts from Revenue Department	3,952
Total ...	2,38,702
Surplus	1,39,880

Chief works done.—Introduction of sandalwood in suitable places and sandalwood extraction are the main operations in the district.

In order to facilitate extraction of forest produce mainly sandalwood and inspection of forests the three ghaut roads in the district were repaired and made fit for motor traffic. The three roads are—

The Kollegal-Hannur-Tamarakarai road.

The Kollegal-Lokkanhalli-Bailur road.

The Cowdalli-Chengadi-Ponnachi road.

The following buildings were built for the housing of subordinates:—

	Rs.
Subordinates lines at Ponnachi	2,400
Do. Thamarakarai	2,278
Completion of range clerk's quarters at Tamarakarai	505

The boundaries of four enclosures were permanently demarcated.

General.—The Vernacular Training School was held in the district and 2 foresters and 28 guards were trained.

Other works undertaken.—Early burning of grass between the outer edges of sandalwood blocks and frontier boundary, deepening well and creeper cutting in sandalwood areas.

North Coimbatore.

Description.—Same as reported in 1928-29.

Areas.—Eight hundred and seventy-two square miles of which 40 are under the management of panchayat. Two square miles were transferred to class I being rich in sandalwood.

How the forest district is split up into subordinate administrative charges.—The division consists of four ranges with 50 beats.

Ranges.	Headquarters.
Satyamangalam	Satyamangalam.
Talamalai	Do.
Bhavani	Andiyur.
Mettupalaiyam	Mettupalaiyam.

Cost of administration—

	Rs.
Pay of officers	11,099
Rangers	8,848
Subordinate staff	17,496
Clerical staff	7,371
Menials	1,107
Temporary establishment	892
Allowances	13,332
Contingencies	3,916
Total ...	64,061

Cost under other important heads—

By Government agency—

Timber	188
Firewood	316
Sandalwood	22,409
Minor produce	76
Timber and other produce removed by consumers and purchasers	9,987
Renewal and replacement of stores	100
Roads and bridges	7,497
Buildings	1,839
Maintenance of boundary	10
Regeneration	97
Fire-protection	1,520
Other works	516
Miscellaneous	78
Total ...	44,633

		Rs.
52-A. Capital—		
Purchase of stores		347
Demarcation		74
Roads—New works		92
Buildings—New works		201
Other works—New works		49
	Total ...	763
	Grand Total ...	1,09,457
Income from main sources—		
By Government agency—		
Sandalwood		2,23,985
Timber		631
Firewood		6
Other minor produce		37
By private agency—		
Timber		846
Firewood		19,766
Bamboos		19,262
Grazing		37,823
Other minor produce		14,741
Revenue from unreserved lands		9,058
Miscellaneous (including driftwood)		12,497
	Total ...	3,38,915
	Surplus ...	2,29,458

Chief works done.—Introduction of sandalwood in suitable localities, extraction of sandalwood, supply of firewood, bamboos and agricultural implements to neighbouring towns and villages are the important operations in the district.

The following ghaut roads are maintained by the department:—

Hassanur-Bailur road.
Gairmalam road.
Kempanaickenpalaiyam ghaut road.
Bargur ghaut road.
Dimbam-Talamalai road.

Fire-protection of reserves, enumeration of sandalwood trees, climber-cutting, demarcation, are other important works undertaken. Some of the buildings were improved.

South Coimbatore.

Description.—Same as reported in 1928-29.

Area.—Three hundred and ninety-one square miles of which five are ryots' forests.

How the forest district is split up into subordinate administrative charges.—The division is divided into four ranges. Of these Tunacadavu and Punachi ranges have no beats and the other two ranges are split into seventeen beats.

Rangers.	Headquarters.
Tunacadavu	Topslip.
Punachi	Waterfall.
Pollachi	Anamalai.
Udamalpet	Udamalpet.

Cost of administration—Non-commercial unit—

	Rs.
Pay of officers	19,352
Pay of establishment—	
Ranger	4,890
Subordinate staff	7,392
Clerical staff	7,580
Menials	785
Temporary	974
Allowances	8,768
Contingencies	3,408
	53,149
Cost of sleeper operations	8,461
Total ...	61,610

Cost under other heads—Non-commercial unit—

8. (*b*) *Forest Conservancy, Maintenance and Regeneration—*

	Rs.
Timber by Government agency	6,860
Firewood (by Government agency)	237
Minor produce ...	43
Timber and other produce removed from forest by consumers and purchasers	2,774
Renewals and replacement of stores	333
Feed and keep of cattle	6,332
Roads and bridges	1,136
Buildings	1,311
Other works	20

8. (*b*) *Forest Conservancy, Maintenance and Regeneration*—cont.

		Rs.
Maintenance of boundaries		172
Regeneration		524
Fire protection		358
Other works		576
Miscellaneous		82
		20,758
Cost of sleeper operations		88,984
	Total	1,09,742
52-A. Capital—		
Purchase of stores		278
Demarcation		30
Sowing and planting		3,876
Fire protection		135
Other works		83
Rent of leased forests		2,500
Buildings—New works		1,957
Other works, etc.		60
Purchase of cattle		2,781
Feed and keep of cattle		1,312
		13,012
	Grand Total	1,84,364
Income from main sources—		
By Government agency—		
Timber		5,316
Firewood		299
Minor produce		413
Private agency—		
Timber		5,696
Firewood		17,299
Bamboos		2,571
Grazing		4,830
Minor produce		7,787
Miscellaneous		14,834
Revenue from unreserved lands		6,761
Recoveries of indirect charges		34,125
	Total	99,931
Revenue from sleeper project		1,20,866
	Total	2,20,797
Surplus for non-commercial unit		36,433

Commercial unit—

	Rs.
Receipts—	
Timber	1,97,501
Bamboos	1,500
Miscellaneous	3,935
Total ...	2,02,936
Expenditure—	
Timber by Government agency	76,247
Feed and keep of cattle	16,351
Renewals of stores, etc.	1,120
Roads and bridges	17,211
Buildings	1,355
Other works	826
Working plans	600
Other works	468
Rent of Tekkadi leased forest	2,500
Supplies and services	1,706
Total ...	1,18,384
Establishment—Pay of establishment—	
Permanent	9,315
Temporary	413
Allowances	2,060
Contingencies	3,010
Supplies and services	228
Overhead, etc.	25,313
	40,339
Interest on capital	26,414
Do. loans	409
Deduct depreciation	548
Saw-mill expenses	23,718
Grand Total ...	2,08,716
Loss on commercial unit	— 5,780
Surplus for whole division	30,433

Chief works done.—Extraction of timber from Mount Stuart and Punachi Working Circles, elephant-capture, and regeneration of areas exploited. Extraction of sleeper from Valparai was in the hands of the Engineering branch. It was taken over after the close of the year.

The following are the other works undertaken:—

Carting timber for sale to Pollachi. Cutting and conversion of spokes and felloes. Repairs to roads, buildings and telephone line. Fire-protection of reserves, plantations and depots. Anti-malarial measures to keep forest stations from malaria, demarcation of outer boundary of Punachi Timber Working Circle. Construction of fair weather road for extraction of timber. Construction of subordinates' lines at Karattur and putting up a pipe-line to the waterfall buildings.

MADURA.

Description.—Same as reported in 1928–29.

Area.—Six hundred and eighty-four square miles, of this 37 square miles are ryots' forests.

How the forest district is split up into subordinate and administrative charges.—The whole district is divided into six ranges with 87 beats—

Ranges.	Headquarters.
Cumbum	Cumbum.
Palni	Palni.
Kodaikanal	Kodaikanal.
Ayyalur	Ayyalur.
Natham	Natham.
Sholavandan	Andipatti.

Cost of administration—

	RS.
Pay of officers	17,942
Rangers	48,663
Subordinate staff	
Menials	
Allowances	14,665
Contingencies	3,907
	85,177

Cost under other important heads—

8. Forest Conservancy, Maintenance and Regeneration—By Government Agency—

	RS.
Timber	800
Firewood	861
Forest produce removed by consumers and purchasers	13,334
Renewals and replacement of stores ...	83
Roads and bridges	11,997
Buildings	2,639
Other works	252
Fire-protection	3,224
Other works	123
Miscellaneous	466
Total ...	33,779

52-A. Capital—

	Rs.
Purchase of stores	159
Demarcation	635
Sowing and planting	395
Other works	244
Roads in progress	325
Roads—New works	4,255
Buildings—New works	1,295
Other works—New works	179
	7,487
Grand Total ...	1,26,443

Income from main sources—

By Government agency—	
Timber	1,735
Firewood	2,094
Minor produce	18
By private agency—	
Timber	1,210
Firewood	1,13,158
Bamboos	2,742
Grazing	26,964
Other minor produce	29,308
Miscellaneous	30,445
Receipts from unreserved lands	45,898
Total ...	2,53,572
Surplus ...	1,27,129

Chief works done.—Supply of fuel, bamboos, maintenance of long lines of communications belonging to both district boards and Forest department. Experimental work is in progress at Vannathiparai. Experiments are being conducted regarding introduction of lac in Vannathiparai reserved forest. The boundary lines of some of the enclosures and reserves and areas granted for cultivation of cardamoms are being demarcated. Nine miles of roads to tap fuel coupes and two subordinates' lines to house subordinates were constructed during the year. The pine plantations were fire-protected.

TINNEVELLY.

Description.—Same as reported in 1928–29.

Area.—Four hundred and seventeen square miles of which 10 are ryots' forests.

How the district is split up into subordinate administrative charges.—The whole division is divided into six ranges with 49 beats.

Ranges.	Headquarters.
Kodamadi	Ambasamudram.
Kannikatti	Do.
Kuttalam	Kadayanallur.
Srivilliputtur	Srivilliputtur.
Nanguneri	Sivanaperi.
Srivaikuntam	Srivaikuntam.

Cost of administration—

	Rs.
Pay of officers	8,526
Rangers	11,552
Subordinate staff	16,995
Clerical staff	8,829
Menials	975
Temporary staff	932
Allowances	7,658
Contingencies	3,587
	59,054

Cost under other important heads—

8. Forest Conservancy, Maintenance and Regeneration—By Government Agency—

	Rs.
Timber	3,363
Firewood	111
Sandalwood	340
Forest produce removed by consumers and purchasers	6,743
Renewals, replacements of stores	220
Roads and bridges	4,250
Buildings	2,921
Other works	47
Maintenance of boundaries	68
Regeneration	407
Fire-protection	343
Other works	586
Miscellaneous	212
Total ...	19,611

52-*A. Capital*—

		Rs.
Purchase of Stores		184
Sowing and planting		2,571
Roads—New works		1,457
Buildings in progress		124
Buildings—New works		168
		4,504
Grand Total ...		83,169

Income from main sources—

By Government agency—		
Timber		3,994
Firewood		1,571
By private agency—		
Firewood		92,086
Bamboos		899
Grazing		7,442
Other minor produce		14,593
Miscellaneous		13,453
		1,34,038
Receipts from unreserved lands		32,731
Total ...		1,66,769
Surplus ...		83,600

Chief works done are.—Extraction of timber from the evergreen forests and supply of firewood. Sandalwood is extracted and sent to IV Circle for sale. In Kudiramoliteri reserve palmyras are being planted to arrest the movement of the shifting sands and to form a valuable crop for the future. The Travancore frontier boundary was cleared during the year. Construction of cart-tracks and improvement to existing roads and buildings are the other items of works done. Two hundred and seventy-four broad gauge sleepers and 172 meter gauge sleepers were extracted for supply to the Railway.

Tanjore Forest Reserves.

In this district are the Kodiakadu and Talanayar reserves in the taluk of Tiruturaipundi.

Kodiakadu—the area is an undulating sandy plain well covered with Memecylon, Minuesops, Ixora, Mababuxifolia and Cassia fistula with an undergrowth of thorns except for the blanks and swamps scattered throughout. Talanayar is a land locked mangrove area cut up by creeks and a large central lagoon—a backwater of the Adappar river.

Area.—Ten square miles of which six are in class I.

How the two reserves are administered.—These two reserves are administered by the Revenue Divisional Officer and Tahsildar under the technical advice of the Conservator of Forests, V Circle. The regular forest staff consists of a forester and three forest guards.

Cost of administration, 1929–30—

		Rs.
Pay of officers		1,200
Pay of subordinate staff		985
Allowances		140
Contingencies		50
	Total	2,375

Cost under other important heads—

8. Forests—		
Coupe watchers		256
Buildings		277
Other works		9
		542
	Total	2,917

Income from main sources—

By Government agency—		
Firewood		26
By private agency—		
Firewood		1,245
Grazing		358
Other minor produce		2,299
Miscellaneous		9,377
		13,305
Revenue from unreserved lands		6,662
	Total	19,967
	Surplus	17,050

Chief items of work done.—Besides general protection of the area and maintenance of buildings, fuel coupes are worked on contract.

COIMBATORE,
18th September 1930.

T. A. WHITEHEAD,
Conservator of Forests, V Circle.

ANNUAL ADMINISTRATION REPORT OF THE FOREST DEPARTMENT

FOR THE

YEAR ENDING 31ST MARCH 1930.

SIXTH CIRCLE

CHAPTER I.—CONSTITUTION OF STATE FORESTS.

1. ALTERATION IN AREA.

(i) *Reserved forests.*

The total area at the beginning of the year was 1,839 square miles and at the end of the year was 1,914. About half a square mile was disreserved, and 75 square miles were finally settled and added to the Nilgiris.

(ii) *Reserved lands.*

The total area at the beginning of the year was 106 square miles. Seventy-five square miles were transferred to reserved forests and about $3\frac{1}{2}$ square miles were excluded as the proposal for reservation was abandoned. The area at the end of the year was 34 square miles.

2. FOREST SETTLEMENT.

Fifty-two thousand and fifty-eight acres of the Mudumalai forests in the Nilgiris were finally settled during the year.

In the South Mangalore division, the settlement of the blocks notified under section 4 of the Madras Forest Act was not taken up by the Forest Settlement Officer appointed for the purpose during the year. This was due partly to the non-completion of the survey of the villages, especially the survey of the boundaries between warg and Sirkar kumris and partly to the fact that forest settlement was held in abeyance temporarily under orders of the Chief Conservator of Forests conveyed in his No. 10128/29 C.1, dated 24th December 1929, pending a re-inspection of the blocks.

In pursuance of the Chief Conservator's order Ref. No. 10128/29 C.1, dated 24th December 1929, referred to above, the District Forest Officer inspected all the six blocks notified under section 4

and recommended that all of them should be reserved with the exception of Karindala block which he recommended should be abandoned.

3. Demarcation.

Twenty-six miles of new boundaries were demarcated during the year, 22 miles in the Wynaad division (parts of Peria, Kartikulam, Alattur, Kuppadi, Kallur and Ladysmith reserves) and 4 miles in the Nilgiris division as a result of disafforestation of certain reserves.

The reclearing of boundaries was, as usual, done by subordinates free of cost in all divisions except Wynaad and Nilambur. The year's programme of inspection of political frontiers was carried out.

4. Forest Surveys.

(a) *By the Survey of India Party.*

Nil.

(b) *By the Madras Survey Party.*

The party continued its work in the South Mangalore division.

The survey of coupes, regeneration areas, plantations, etc., was undertaken departmentally.

The reference maps were maintained.

CHAPTER II.—MANAGEMENT OF STATE FORESTS.

1. Regulation of Management.

Preparation and control of working plans.

Preparation.—In North Mangalore a revised scheme for sowing Acacia sundra in Coondapoor range was sanctioned in Chief Conservator's Proceedings Rt. No. 59, dated 3rd February 1930. The Working Plans Officer has taken up the work of preparing a plan for the whole division. In South Mangalore division the work of preparing a plan for the whole division is in progress. In the Wynaad division, the preparation of a plan for the ghaut forests has been begun by a Working Plans Officer. In the Nilambur division, the District Forest Officer is preparing a plan for the hill areas in the New Amarampalam reserve of Amarampalam range. In the Palghat division, an Assistant Working Plans Officer is engaged in the preparation of a regular plan for the Chenat Nair, Dhoni, Silent Valley and Attapadi reserves. A revised working plan for the Thadagam, Anaikatti and Bolampatty Block III reserves has been prepared by Mr. M. H. Krishnaswami and is being submitted to the Chief Conservator for sanction.

Control.—The prescriptions of the existing working plans and schemes are generally followed and such deviations as occur receive proper sanction after enquiry has shown them to be justified or unavoidable. A form of ' objection statement ' has been devised which is believed to simplify greatly the work of the territorial Conservator, Working Plans Conservator and the District Forest Officer in controlling working plans prescriptions.

2. Communications and Buildings.

Roads and bridges.—The total expenditure on ' Capital works ' was Rs. 8,383 against 9,088 in the previous year and that on ' Repairs ' amounted to Rs. 23,504 against Rs. 14,291 in the previous year.

The important new works costing over Rs. 1,000 each executed during the year were—

	Rs.
1. Improvements to Boothakkal-Bavali road, Wynaad division	4,388
2. Construction of Varali cart-track including land acquisition, Palghat division ...	1,056

Six hundred and forty-one miles of roads, bridle-paths and inspection paths were maintained at a cost of Rs. 23,504.

Buildings.—Rupees 23,138 were spent on capital works against Rs. 17,268 in the previous year and Rs. 14,613 were spent on repairs against Rs. 11,055 in the previous year.

The increase under capital works was chiefly in the Nilambur division. The increase under repairs was chiefly in South Mangalore and Palghat divisions and was due to extensive repairs being required for certain buildings.

The important new works were—

	Rs.
1. Construction of an inspection shed at Kervashe, North Mangalore division. ...	2,276
2. Inspection shed at Odapallam, Wynaad division	1,142
3. Completion of Extra Assistant Conservator's quarters, Nilambur division ...	7,158
4. Provision store-house, Nilambur division ...	1,077
5. Assistant Veterinary Inspector's quarters, Nilambur	4,156
6. Purchase of Police lines at Masinagudi for the use of subordinates	1,896

Other works.—Rupees 521 was spent on new works against Rs. 1,120 in the previous year. The decrease was mainly due to less expenditure in the South Mangalore division.

3. Protection of Forests.

(a) *General protection.*

The following statement compares the total number of forest offences during the year under report with that of the previous year :—

Cases.	Fires.		Felling.		Grazing		Other offences.		Total.	
	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29	1929-30.
A. Taken into Court.	33	21	159	154	43	41	33	66	268	282
B. Compounded ..	117	137	918	846	282	194	107	324	1,424	1,501
C. Undetected ..	92	109	8	2	..	..	..	..	100	111
Total ..	242	267	1,085	1,002	325	235	140	390	1,792	1,894
In Reserves	115	130	706	570	325	235	119	354	1,265	1,289
In Unreserves ..	127	137	379	432	..	..	21	36	527	605

Compared with the previous year there was increase in the total number of offences by 5·69 per cent.

Under ' Reserve ' the increase was under ' Fires ' and 'Other offences.' The increase under 'Injury to forests' by fire' was in the South Mangalore division and is attributed to the long hot weather. The increase under other offences was in the Nilgiris division and is due to better detection of offences by subordinates.

Under 'Unreserves,' the increase was chiefly under felling in the South Mangalore division and is attributed to better detection.

The percentage of cases detected in reserves and enquired into by Range Officers and District Forest Officers are as follows.

The total number of cases concerned is also entered for comparison.

	By District Forest Officer.	By Range Officer.	Total cases.
	PER CENT.	PER CENT.	
North Mangalore ...	...	13·68	227
South Mangalore ...	2·6	13·8	232
Wynaad	6·0	39·0	18
Nilambur	22·0	22·0	14
The Nilgiris ...	1·0	5·0	563
Palghat	...	7·4	171

In North and South Mangalore and Palghat divisions, it is reported that the offences not enquired into are generally of a simple nature and do not need personal enquiry. The low percentage in

the Nilgiris is reported to be due to the fact that the offences in general related mostly to petty thieving of brushwood for fuel which did not need personal enquiry.

Of the 196 cases in reserves prosecuted in Courts, 139 ended in conviction and 57 in acquittal. Of the cases acquitted, 43 were settled by payment of compounding fees in Courts. Hence the total percentage of successful prosecution was about 93 per cent.

The amount of compounding fees realized was Rs. 18,345 against Rs. 16,024 in the previous year. The average compounding fees realized were Rs. 13-2-0 per case and Rs. 6-4-0 per person.

Rewards.—In the North Mangalore division, a reward of Rs. 30 was granted to two individuals for detecting a sandalwood smuggling case.

(*b*) *Protection from fire.*

Special protection.

The period dealt with is the calendar year 1929.

Early burning—North Mangalore division.—The operations were confined to the ghaut forests. The area treated was 7,103 acres against 7,675 acres in the previous year. The decrease is reported to be due to the early burning of less area in the Udipi range. The system did not meet with any opposition from the ryot population.

Wynaad.—The protection of Kannoth range forest was by early burning. The area attempted to be protected was 47,935 acres, i.e., the whole of Kannoth range. Rupees 76 was spent on the work. The result was satisfactory as there were no fires reported in the range.

Besides the above, the only early burning done was on grassy hills in Tirunelli and Hilldale reserves, 2,500 acres in Tirunelli reserve and 1,550 acres in Hilldale reserve or in all, 4,050 acres of grassy hills were dealt with at a cost of Rs. 28. Part of the protection of these two reserves was by clearing and burning of fire-lines. The total cost on the whole for these two reserves was Rs. 276-8-0. The result was not unsatisfactory. There was only one fire reported, over 15 acres, and that occurred in Tirunelli reserve.

The area of forest tract protected by early burning may be taken as 47,935 acres of Kannoth range only as several guide lines were cut and burnt in Tirunelli and Hilldale reserves in addition to the burning of grassy areas.

The system of protection by cleared lines and patrols continued in other parts of the Circle and in the Wynaad division

this was effected by cutting guide lines 3 feet wide and about 100 yards distant from certain roads, paths, boundaries and old fire-lines and burning the intervening strips.

South Mangalore.—Special attention was paid during the year to the fire tracing of the Mysore-South Kanara boundary line.

The Nilgiris.—The operations in the specially protected areas of the Mudumalai range and in the Kundahs of the Ootacamund range were carried out in accordance with the sanctioned working plan and scheme. As the results were not satisfactory in the Mudumalai range, proposals were sent up to the Chief Conservator for modifying the system of protection and these were generally approved by him after close of the year.

The area specially protected increased from 1,103 square miles to 1,242 square miles. The increase was chiefly in North Mangalore, Wynaad and the Nilgiris and was due to transfer of some areas from general protection in North Mangalore and Wynaad, and in the Nilgiris to the inclusion of the area of the Mudumalai-Kumbarakolli reserve, notified under section 16 during the year.

The area successfully protected during the year was 96·7 per cent against 99·4 per cent in the previous year, the area burnt being 25,100 acres against 3,825 in the previous year. The increase in the extent of fires was in South Mangalore, Wynaad, the Nilgiris and Palghat divisions. In the South Mangalore division, it is reported to be due to an unusually long hot season; in the Wynaad, it is attributed to incendiarism and in the Nilgiris, to a very dry season. In the Palghat division, there were extensive fires in the Chenat Nair reserve, but the cause is not definitely known, but one of the fires spread from the private forests close by.

The average cost of special protection was Rs. 10-3-0 against Rs. 12-7-0 in the previous year. The cost of early burning was Rs. 8-0-6 per square mile in North Mangalore division and Re. 1 in the Wynaad division. The lowest rate for protection under the old method was in South Mangalore division, viz., Rs. 4-10-0 per square mile and the highest was Rs. 26-0-0 in Nilambur.

General protection.

The area under general protection was 430,302 acres and the area burnt was 6,237 acres.

(c) *Protection against cattle.*

The area closed to grazing decreased from 336 square miles to 331 square miles due to the transfer of 9 square miles of reserved lands to reserved forests in the Nilgiris, which were thrown open

to grazing, and to the closing to grazing of 4 square miles of recently felled coupes and areas under regeneration in the North Mangalore division. In Nilambur, the entire forest is closed to grazing but the cattle from the adjoining villages continued to do damage to the young plantations.

The area closed to grazing of all animals was 331 square miles, which amounted to 17 per cent of the total area of reserved forests and lands. The area open to the grazing of all animals except goats was 82 per cent and that open to all animals except browsers (sheep and goats) was 1 per cent.

The number of animals licensed to graze on payment was 121,004 against 123,392 in the previous year. The decrease was due to a less number of licences being issued at the Kulgunda cattle fair in the South Mangalore division, and to cattle mortality in the Wynaad division.

The incidence of grazing as reported by the District Forest Officers was

	Acres per cow unit.	
	1928–29	1929–30
North Mangalore	9·9	9·7
South Mangalore	5·9	5·8
Wynaad	18·0	13·0
Palghat	6·6	12·2
The Nilgiris		5·0

The number of cattle impounded decreased from 2,271 in the last year to 1,072 during the year. The decrease was chiefly in the Nilgiris division.

(d) Protection against injuries from natural causes.

Weeds and climbers.—In the North Mangalore division, climbers were cut in the timber coupes at the time of marking trees for felling. Climbers injurious to the young Hopea regeneration in Someshwar, Jatkatmale and Halesomeshwar and other reserves were removed during the tending operations.

In the Nilambur division, climbers in the plantations were cut according to the prescriptions of the working plan. Clearing of Loranthus was also done.

In the Palghat division, weeds and climbers in the coupes and in the areas under regeneration were cut.

Lantana.—In the South Mangalore division, the uprootal of Lantana in the Muliyar reserve and the cutting of climbers and weeds in the natural and artificial regeneration areas were done.

In the Wynaad division, Lantana was uprooted in plantations and around all buildings.

Insects.—In the South Mangalore division, the attack by the borer *Xyleborus morstatti* on young Hopea plants in Mundaje Kap reserved forests, referred to in the last report, is reported to have ceased. The remedy suggested by the Entomologist was done in the case of suspected attacks. The Forest Entomologist has reported that the beetle that emerged from a log sent from Aletti reserved forest has been identified as *Mascicuss Venutus* and its life history is reported to be unknown. In the Wynaad division, the borers which were damaging teak saplings in the previous two years are reported to have disappeared during the year.

Damage by teak defoliators in the Nilambur division is reported to have been almost negligible until the very end of the year when a severe defoliation commenced. The work of mapping defoliated areas by the special duty forester and of reporting observations to the Forest Entomologist was continued throughout the year.

In the Nilgiris, despite shading over the plants, severe frost destroyed the plantation of *Eucalyptus pillularis* planted in 1929 in coupe IV, Brooklands. Wind also did some damage in the plantations in Ootacamund and Coonoor ranges. Spike in sandal trees spread in the Bokkapuram reserve and nearly all the sandal in it has been attacked. The disease has also got a grip in the adjoining unreserves. All dead spiked trees were removed. Spike is also spreading slowly in the Segur reserve. *Eupatorium* is reported to be spreading in Ootacamund and Mudumalai ranges and it is welcomed in the latter range as being preferable to the grass. In the Mudumalai range, the teak borer *Phassus malabaricus* is reported to have done some damage to the young plantations and the remedial measures recommended by the Entomologist are reported to be difficult to be put into practice.

Damage by animals.—In the South Mangalore division, the injury by wild animals continued to some extent. In the Wynaad division, bison, sambhur, pigs and elephants continued to do some damage to young plantations especially pig in Begur range, where once again their ravages were disastrous. Damage was prevented as far as possible by patrolling by subordinates and by the use of Government muskets. In the Nilambur division, wild elephants and bison caused severe damage to some of the young plantations of Amarampalam range and monkeys did some damage in the young plantations of Nilambur range. In the Nilgiris division, cattle did some damage to the young plantations and protection is difficult where vast areas open to grazing adjoin plantations. Elephants, sambhur and monkeys did some damage to the teak tuckle areas. Occasional visits of wild elephants did some damage to the regeneration in the Palghat division.

CHAPTER III.—SYLVICULTURE.

I. Afforestation and Regeneration of Forests.

(i) *General progress of areas under regeneration.*

North Mangalore.—The seedlings of *Hopea parviflora, Artocarpus hirsuta* and *Vateria indica* of previous years' sowings in Someshwar, Jatkatmale and Halesomeshwar reserves are promising. Regeneration by coppice in fuel and catechu coupes is fair.

South Mangalore.—All the regeneration areas are in a satisfactory condition. Tending was done as usual in areas regenerated with Hopea between 1920 and 1927 in Parappa, Porkala, Padnur and Mundaje Kap reserves.

Nilambur—Plantation and Conversion Working Circle.—Two for Begur, Chedleth and Sultan's Battery ranges. Clean weeding was stopped in the Begur range to avoid damage by pigs which, as reported last year, have developed a most unfortunate liking for the succulent roots of teak stumps. Teak was tried along with field crops on about 12 acres. This area suffered less from pigs than other areas, owing to closer watching by the Kurumbar cultivators. The growth of weeds and grass was also kept within reasonable limits in this cultivated area.

Nilambur—Plantation and Conversion Working Circle.—Two hundred and twenty-seven acres were regenerated with teak during the year. The average stocking throughout is approximately 95 per cent. The soil aeration, which accompanies the weeding as prescribed by the working plan, is having a markedly beneficial effect on the early growth of these plantations.

The 1928 plantations of the Conversion Working Circle are making quite good progress, but the 1928 plantations in the Plantation Working Circle are not impressive.

The Nilgiris.—Eucalyptus globulus coppice on the plateau continues to be satisfactory. The young plants of several hardwood Eucalyptus, put out in recent years, both in Coonoor and Ootacamund ranges, do well when they are once established but it is difficult to obtain full stocking of young plantations. These hardwoods are much more susceptible to drought and frost than is the Bluegum. *Eucalyptus pillularis*, planted in Ootacamund in 1929, was destroyed by frost in 1930. On one night 16° of frost were registered at Ootacamund, which was exceptional.

Improvement fellings in compartment 15, Mudumalai, have resulted in a noticeable improvement in the condition of the favoured species.

Palghat.—All the areas regenerated in previous years were tended and the development of coppice and young regeneration is satisfactory.

(ii) *Establishment of reproduction under working plans or schemes.*

Mainly natural.

Nilambur.—In 19 acres of very poor teak plantations, compartment 57, Edacode 1893 and part of compartment 41 of Ellenjeri 1858, the teak trees were felled and the stools trimmed in March 1929 with a view to regenerating the area by teak coppice. Bamboos and trees likely to damage the coppice were cut. The areas were tended in October 1929 by cutting climbers and high weed growth round coppice and cutting surplus coppice shoots, retaining the best two at each stool. The work cost just under Rs. 6 per acre. The coppice areas are quite promising.

The Nilgiris.—There is profuse natural reproduction of Frenela in Arambi and Cairnhill, of *Acacia dealbata* in Brooklands and Snowdon and Cypress in Cairnhill, Block I, of Ootacamund range. In Mudumalai the process of replacement of the pernicious grass by herbaceous and woody plants of various species, by Nature, is progressing. The improvement is most noticeable to anyone who has known the forests for many years.

Mainly artificial.

North Mangalore.—An area of 34 acres in Catechu coupe IV of Wandse series was fenced and sown with *Acacia sundra* in prepared patches 12 ft. by 12 ft. at a cost of Rs. 297 (or say Rs. 9 per acre). The result was satisfactory, survivals being 95 per cent.

Wynaad.—In the Begur range, out of 100 acres felled in 1926–27, 17 acres were planted in 1928 and 35 acres in 1929. No work was done in the remaining 48 acres partly owing to fear of destruction of the plants by pigs which have become a source of danger since the original forest was felled and partly owing to there being enormous arrears to be made up in the pig damaged 1928 plantation. Lack of labour and plants were further causes of limited planting. Planting was done as in previous years with teak stumps, rosewood being planted along the margin and also in a narrow belt within the area. Enumeration in May 1930 showed a stocking of 24 per cent. The cost, including felling of unsaleable species and the cost of seedlings, in 35 acres of Begur, was Rs. 2,234 or Rs. 59 per acre.

Chedleth range.—Ninety-three acres were planted with teak stumps, with a belt of rosewood along the margin, the rosewood, as usual, being one or two years old nursery plants with side twigs

pruned and roots stumped. The rate of growth of teak during the year was slow but enumeration in April 1930 showed 80 per cent stocking and since then more survivors have shown up. The cost was Rs. 6,234 or Rs. 67 per acre.

The felling of unsaleable species was done over 75 acres of coupe I, Begur, and 77 acres of coupe II, Chedleth, at costs of Rs. 847 and 1,373 respectively. Rupees 102 in Begur and Rs. 95 in Chedleth were spent for preparing patches for regeneration in Selection felling coupes I.

Nilambur—Nilambur range—Plantation Working Circle.—Edacode compartment 81 (part), Elenjeri compartment 41 (part), Ambalakandi compartment 243 and Chaliyappuram compartment 244, clear felled in 1928–29, and depot sites in compartments 77, 83 and 88 of Edacode, in all 54·1 acres, were regenerated during the year, 44 acres by planting teak seedlings 6 ft. by 6 ft. and 10·1 acres by dibbling teak seeds at stakes 6 ft. by 6 ft. The dibbling was done in the third week of April and planting between the 4th and 20th June. The casualties in the planted areas were very heavy owing to a break in the monsoon as soon as the original planting was finished. There were exceptionally high floods on 5th, 6th and 7th July and about 11 acres were under water on these three days resulting in heavy casualties. The nurseries were also under water and were very much damaged, and a lot of seedlings had to be brought from Amarampalam range to complete the replacement of casualties. The whole area was gone over as many as five times and casualties were replaced with teak, except in swampy places where Karimarudu (*Terminalia tomentosa*) was used. In the dibbled area (i.e., Chaliyappuram and Ambalakandi) germination from artificial sowing was poor. But natural regeneration of teak appeared almost all over the areas, and was so thick in places as to resemble a nursery. Casualties were replaced in July using the natural seedlings, so that a seedling was left at every stake, in addition to the quantities of natural regeneration scattered throughout the areas. The planted area was weeded three times. The first weeding, in July, consisted of cutting weeds and scraping with mamooties in 4 feet strips (2 feet on either side of the plant rows), the second, in September–October, consisted of uprooting weeds and digging the soil with forked mamooties 2 feet on either side of the plant rows, and the third weeding, done in November–December, consisted of cutting climbers and weeds around small plants.

In the area dibbled with teak (Chaliyappuram and Ambalakandi) there was very little weed growth, and weeding was done as and when required. The soil is loose and sandy and therefore no digging was necessary.

The expenditure incurred on the work was Rs. 2,664-13-10, out of which Rs. 634-2-3 was spent in 1928–29 and the balance in 1929–30. The cost of formation was therefore Rs. 49-4-1 per acre.

With the exception of one depot site of $2\frac{1}{4}$ acres where the success amounted to only 88 per cent, the average stocking of the second rotation plantations was $94\frac{3}{4}$ per cent in November 1929, and there have been practically no casualties since.

4·3 acres in compartment 61 of Edacode were cleared and burnt and regenerated during the year by dibbling 2·3 acres with karimarudu (*Terminalia tomentosa*), 1 acre with rosewood and 1 acre with teak, the espacement being 6 ft. by 6 ft. in all cases. The dibbling was done between the 4th and 9th May. The germination was poor in the case of teak and karimarudu (*Terminalia tomentosa*), while rosewood failed entirely. Casualties were replaced with teak plants in the teak and rosewood plots, and with karimarudu (*Terminalia tomentosa*) plants in the karimarudu plot, in June, July and August. The plants were weeded in July-August. The teak plants were aerated in September–October by digging with forked mamooties and removing weeds in 4 feet strips.

The expenditure incurred was Rs. 267-4-4.

Hopea parviflora was planted under the existing crop in the following sub-compartments of the Miscellaneous Felling Series :—

		ACS.	ACS.
Panangode—			
130 (m)		0·7	
136 (m)		1·8	
137 (m)		10·3	
138 (m)		1·6	
		——	14·4
Walluvasseri—			
148 (m)		0·8	
150 (m)		4·3	
151 (m)		2·5	
154 (m)		0·9	
155 (m)		4·4	
		——	12·9
Old Amarampalam—			
233 (m)		4·8	
234 (m)		4·6	
235 (m)		9·5	
		18·9	46·2

The planting was done at an espacement of 9 ft. by 9 ft. in June–July with plants from the 1926 nursery. In all, 21,075 plants were planted during the year, both by way of original planting and replacing of casualties that occurred amongst 10,510 seedlings planted in the same areas in 1928–29. The total expenditure incurred on planting these areas was Rs. 330-14-4, out of which Rs. 222-13-11 was spent during the year. The planting met with more success than is usual with Hopea, the survivals after a year being about 75 per cent on the average. (1930–31, being the third year, will be the last time of replacing casualties according to the working plan.)

Conversion Working Circle—Periodic Block I, Nilambur range.—48·8 acres of natural forests in Erambadam, clear-felled in 1927–28, which could not be regenerated in 1928–29, on account of the poor burn, were cleared and burnt and regenerated during the year by dibbling teak seeds at stakes 6 ft. by 6 ft. in May. Germination was poor, success being obtained at only about 30 per cent of the stakes. Blanks were filled and casualties replaced in June and July, by planting teak seedlings from dry nurseries, dumps and from stakes where there was an excess of germinated seedlings. Casualties were again replaced in August with nursery plants brought from the Pulimunda nursery in Amarampalam range, as sufficient plants were not available in the area owing to poor germination. Four weedings were carried out.

The weed growth and bamboo shoots were cut in June. In July and August, weeds were again cut in strips 2 feet wide on either side of the plant rows. In September–October the plants were aerated by digging with forked mamooties in circles 4 feet diameter and by removing the weeds and cutting regrowth outside the circles. Regrowth of weeds and climbers was again removed in November–December. The total expenditure incurred was Rs. 2,412-9-5 out of which Rs. 1,003-8-9 was spent during the year. Thus the cost of formation was Rs. 49-7-0 per acre.

In November 1929, success amounted to 92 per cent and there have been very few casualties since.

Amarampalam range.—123·6 acres of natural forests in Pulimunda (New Amarampalam reserve forest) clear-felled in 1928–29 were regenerated during the year. In 2·4 acres of hill-top, the unmarketables were left standing and Hopea was planted 9 ft. by 9 ft. under the shade.

The rest of the area (121·2 acres) was cleared and burnt and regenerated with teak. Sixteen acres were sown with hill paddy departmentally, and planted with year-old teak stumps. 76·3 acres were dibbled with teak, and 28·93 acres planted with teak seedlings raised in the nursery, the espacement adopted being 6 ft. by

6 ft. in all cases. The dibbling was commenced on 17th April 1929, and completed on 18th May 1929. The planting was done between the 6th and 18th June.

Casualties were replaced in June and July with teak seedlings and one-year old teak stumps. In swampy bits of low-lying ground karimarudu (*Terminalia tomentosa*) plants were used in replacing casualties.

In the teak dibbled and planted areas three weedings were carried out. The first weeding done in June–July consisted of knifing weed growth, the second in September consisted of digging and removing weeds in circles of 4 feet diameter around each plant and knifing the weed growth outside the circles, and the third in November, consisted of cutting weed growth round plants, where necessary.

In the Ponam area (16 acres) no weeding other than weeding the paddy crop was done till after the harvest. After the paddy was harvested in October, the plants were weeded and aerated uprooting all the paddy stalks.

Climbers were cut over the whole area in March 1930.

The total expenditure incurred was Rs. 7,493-3-11. Out of this, a sum of Rs. 410-12-2 represents expenditure in connection with the cultivation of paddy crop in the Ponam area of 16 acres. The value of the yield in paddy and straw was Rs. 850-1-1, resulting in a net gain of Rs. 439-4-11. Deducting this from the expenditure incurred, the net cost of regenerating the whole of the plantation was Rs. 7,053-15-0 or Rs. 57-1-2 per acre.

In December 1929, excluding the small Hopea area which was poor, the general success was approximately 95 per cent. The growth of the teak is, on the whole, very good. In the Ponam area the growth was delayed till the paddy was removed, but this area now looks like outstripping the rest of the plantation. The paddy crop was a light one (mainly on account of the depredations of elephants and bison in such a small patch) but even so it repaid the cost of clearing and burning.

The Nilgiris.—In the Mudumalai range, teak regeneration was done with teak under the tuckle system (the field crop being ragi) on an area of 15 acres. The work was done departmentally, the yield of ragi being 80 pallas, valued at Rs. 920. There was 60 per cent stocking of teak. Regeneration with rosewood and mathi (*Terminalia tomentosa*) was tried in an adjoining area of 5 acres but the result was a failure.

An area of 30 acres was cleared of marketable species and burnt for regeneration in 1930–31. A nursery was maintained at Lower Kargudi at a cost of Rs. 190 for providing teak stumps. In

Coonoor range, in compartments 4 and 5 and 2 (*a*) of Springfield and in Block II of Coonoor Peak Acacia and Frenela were clear-felled and the areas were replanted with *Eucalyptus pillularis* and *Eucalyptus globulus*, respectively, seedlings raised and mossed at Doddabetta being used. The results are good, the percentage of success ranging from 75 to 98.

In Ootacamund range, compartment 4 of Brooklands—5·3 acres—was planted with *Eucalyptus pillularis*. The plants were completely killed by frost. In Governorshola Block VI, compartment 4—area 6·4 acres—blank areas were filled with *Eucalyptus globulus* plants. The following compartments were converted from Acacia or Frenela into Bluegum :—

	ACS.	Cost. RS.
Block VI, C.I., Governorshola	10	178
Block I, C. 9 (*b*), Cairnhill	3	45
Block III, C. 1, Marlimund	3·7	42
Block VII, C. 3 (*a*), Aramby	3	46

Sandal sowings.—The result of the year was in general a failure. Sowings were done over 25 acres in Segur at a cost of Rs. 44, but the germination was not satisfactory. In Coonoor range, sandal seeds were dibbled in plots in Burliyar and Lambsrock in an area of 25 acres at a cost of Rs. 80, but the result was a failure. The growth in the area where sowings were done in Burliyar is somewhat too dense for the artificial introduction of sandal ; a certain number of natural sandal seedlings are, however, coming up, none the less.

In the Mudumalai range, sandal sowings were done in 1 acre plots in four different localities in compartments 1 and 10, but the result was a failure.

Palghat—Pole Working Circle, Walayur, Block II (Compartment 8 balance), coupe III.—Out of 79·20 acres clear-felled in the previous year, 52·70 acres, where natural reproduction and coppice regrowth of good species were not sufficient, were planted with one year old teak stumps early in June 1929, the espacement adopted was 9 ft. by 9 ft. except over an area of 7·9 acres along the bank of the stream where the espacement was 6 ft. by 6 ft. The remaining area contained good coppice growth of teak and other valuable species and therefore was not planted. The growth over both the planted and the coppice areas is good. The total expenditure on the 52·70 acres planted with stumps was Rs. 892 or Rs. 16-13-0 per acre. The remaining area not artificially regenerated, viz., 26·50 acres, was tended at a cost of Rs. 87 or Rs. 3-6-0 per acre.

Bolampatti range—Ponam Working Circle Compartment 16, *coupe IV.*—An area of 27·50 acres felled in the previous year was given for cultivation to the Irulars who cleared and burnt the area completely by the middle of May 1929 and prepared bunds 12 feet apart.

Subsequently, the subordinates notched germinating teak seeds, taken from dumps, along the bunds.

The approximate area sown with teak was about 8 acres and that sown with other species, viz., *Terminalia tomentosa, Albizzia lebbek, Albizzia odoratissima, Melia indica, Gmelina arborea,* was about 19·50 acres. The Irulars weeded the bunds in July and August and again in September and October 1929. The total expenditure on regeneration was Rs. 142 or Rs. 5-3-0 per acre. The result from sowing of the species other than teak has been fairly satisfactory, while the percentage of success in the case of teak has been very poor.

Ponam coupe III.—As prescribed in the Working Plan for Bolampatti Valley, stump planting of teak, *Melia indica, Albizzia lebbek, Albizzia odoratissima, Terminalia tomentosa* and *Gmelina arborea* was done 4 feet apart in Ponam coupe III at a cost of Rs. 378-4-0.

Afforestation.—Nil.

(iii) *Plantation and other forms of regeneration now under working plans or schemes.*

North Mangalore.—In Halesomeshwar reserve, an area of 205 acres already sown with Hopea 27 ft. by 27 ft. in 1922 was resown with Hopea 9 ft. by 9 ft. at a cost of Rs. 1,565 or say Rs. 7-9-0 per acre.

The percentage of success was 65. Patch sowings of teak, Xylia, rosewood, wild jack and *Pterocarpus Marsupium* in 44 gaps formed by timber fellings in Someshwar coupe IV was a failure. The total cost of preparing the patches and sowing came to Rs. 154.

South Mangalore.—Sixteen acres of coupe IX of Parappa reserved forest clear-felled and burnt in the previous year were sown in May 1929, with *Acrocarpus,* teak and rosewood at a total cost of Rs. 450 or Rs. 28 per acre. The percentage of success is 65.

In strip 2 of Aletti West reserved forest, the following works were done :—

(*a*) Artificial regeneration of gaps with Hopea, *Artocarpus hirsuta* and *Acrocarpus fraxinifolius.*

Sowing over 9½ acres.

Transplanting seedlings over 25 acres.

(*b*) Tending natural regeneration of good species—Hopea, *Artocarpus hirsuta, Calophyllum* and *Dysoxylum*—20 acres.

Hopea sowings were a failure but subsequent planting was more successful, the percentage of success being 85. The works were done in May and June and cost Rs. 206 or say Rs. 4 per acre.

In one of the areas abandoned as unfit for Hopea, in coupe V of Parappa, 30 acres were clear-felled and burnt for teak sowings at a cost of Rs. 178.

Eight acres were prepared at a cost of Rs. 29 for an experimental plantation of teak in Sampaje reserved forest. Similarly 26½ acres were prepared in Sampaje coupe II at a cost of Rs. 278.

Palghat.—Planting of teak was continued in the Chenat Nair reserve on the areas shown below, the previous operations having proved successful :—

	ACS.
Dhoni	26
Elival	32·5
Sappal	13

In the blanks formed by selection fellings in the evergreen forests of the Silent Valley over 450 acres of coupe I—17,977 patches—were sown with *Acrocarpus fraxinifolius* seed, 1,541 with Aini and 2,412 with *Hopea parviflora*. Besides, 420 teak stumps were also planted. Failures were replaced in 4,168 patches of Acrocarpus and 55 of Hopea. Light weeding was carried out in 4,716 patches. Climbers were cut wherever necessary over an area of 485 acres. The cost was Rs. 599. Germination has been satisfactory and the regeneration is promising.

(iv) (*a*) *Tending areas under regeneration.*

North Mangalore.—Areas regenerated in previous years in Someshwar, Jatkatmale, Halesomeshwar, Baindur, Mundaregudde and Honagolu reserves were tended (weeding, clearing low shade, and replacing casualties being done as required). The area gone over was 2,530 acres and the cost of tending was under 10 annas per acre on the average.

South Mangalore.—Tending was done in the regeneration areas of Parappa, Jalsur East, Porkala, Padnur and Mundaje Kap reserves and in felled coupes XIV and XVI of Nerankimale reserves. The area gone over was about 2,500 acres, the total expenditure was Rs. 1,466.

Wynaad.—The teak plantations of 1922 to 1928 in Begur range and of 1924 to 1928 in Chedleth range were tended. Similarly the Hopea plantations 1923 and 1924 in Kannoth

were tended. Some old plantations in need of tending or thinning were attended to. The area gone over was 1,112 acres and the expenditure was Rs. 5,109. The greater part of the expenditure was on Begur 1928 plantation (Rs. 2,013 for 87 acres) as 97 per cent of the principal part of the plantation had to be replanted, the plants having been uprooted wholesale by pigs. In the 1927 area which was planted with mixed species, casualties were replaced by teak stumps and rosewood nursery plants whose roots were cut but not the stems. This treatment with rosewood seems quite successful.

The Chedleth 1928 plantation was invaded by long grass except in the portion in which a field crop was raised. Here the better growth of teak and the absence of grass is very noticeable.

In the Sultan's Battery range, sandalwood, planted over 1½ acres in 1926 as an experiment, was tended at a cost of Rs. 4-8-0 and Ceylon satinwood seedlings were planted in half an acre at a cost of Rs. 67.

Nilambur—Nilambur range.—In the Plantation Working Circle 39 acres of 1928 plantations were tended in Edacode, Moolathumanna and Ramalur. About 5 acres in compartments 77 and 88 were clean weeded and sown with Boga (*Tephrosia candida*) but on account of floods the Boga was practically all killed. The casualties were, however, replaced and the small plants were weeded and aerated in November. The total expenditure on these 39 acres was Rs. 386.

In 160 acres of 1927 plantation, climbers were cut and small plants weeded at a cost of Rs. 325.

Climber-cutting was done in 14 acres of 1926 plantation in Ramalur and Edacode at a cost of Rs. 17.

In the Conversion Working Circle, 9 acres of Erambadam 1928 plantation were weeded twice at a cost of Rs. 50.

Amarampalam range.—In the Mundakadava 1928 plantation (85 acres) weeding and pruning was done at a cost of Rs. 702 which also covered the cost of replacing casualties and of aerating the soil in October-November.

Boga sown in 5 acres in 1928 was cut back at a cost of Rs. 9 as it was suppressing the teak.

From this area, 372 lb. of Boga seed were collected at a cost of Rs. 32.

Climbers were cut and the damaged plants were cut back at a cost of Rs. 55 over 25 acres of Karimpoya 1927 plantation.

The Nilgiris.—In 1928-29 tuckle area, a ragi tuckle was attempted for the second year. The ground was thoroughly worked and the teak greatly improved by the operations but the ragi was swamped by weeds and came to nothing. After the ragi was abandoned, tending was carried out.

Tending and replacing casualties in compartments 2 and 3 of Springfield—area 10·4 acres—were done at a cost of Rs. 34.

Palghat.—Weeding and climber-cutting were done in the artificially regenerated areas in Chenat Nair, Elival and Dhoni and weeding only in the teak plantations of Walayar Pole Working Circle and Bolampatty Ponam Working Circle.

Cleaning and climber-cutting were done by the subordinates and Vernacular Training School students over 1,409 acres of fuel and timber areas.

Cleaning and cutting bamboo regrowth in the third and fourth year respectively were done over 293 acres in the Pole Working Circle at Walayar at a cost of Rs. 202 and at Bolampatti the working plan programme of cleaning and climber-cutting was carried out at a cost of Rs. 170 in the fuel coupes.

(iv) (*b*) *Tending of growing stock.*

North Mangalore.—Climbers in timber coupes were cut at the time of marking trees for felling and climbers injurious to Hopea regeneration were removed in Someshwar, Jatkatmale and Halesomeshwar reserves. Tending of sandal was done by subordinates free of cost in six reserves over an area of 3,372 acres.

South Mangalore.—One hundred and forty-seven acres in Jalsur East reserved forest were tended by freeing Hopea seedlings from climbers at a cost of Rs. 124. In 1,030 acres of Nalkur coupes I and II, tending was done at a cost of Rs. 310. Lantana was uprooted over 300 acres of eight fuel coupes at a cost of Rs. 301 in Mulliyar and Kalanjimale reserves. Coppice and root shoots in Narimogar felled coupes were tended.

Nilambur—Plantation Working Circle.—Thinnings and at the same time climber-cutting, clearing Loranthus and cutting bamboos injurious to teak were done over 936 acres at a cost of Rs. 6,046 or Rs. 6-7-0 per acre. Thinning in 47 acres of Edacode 1893 started in the previous year was completed at a cost of Rs. 233.

Climber-cutting, or clearing of Loranthus or both were done over 744 acres not thinned during the year at a cost of Rs. 683 or about 13 annas per acre.

Conversion Working Circle.—New Amarampalam plantations 1916, 1917 and 1918—37 acres—were thinned and climbers were cut at a cost of Rs. 182.

Climbers were cut in Old Amarampalam 1926 plantation over 35 acres at a cost of Rs. 42.

Climbers and bamboos were cut and damaged teak were cut back on 159 acres in New Amarampalam at a cost of Rs. 198.

Areas containing superior pole crops in subsidiary coupe I were thinned, over 106 acres, at a cost of Rs. 93.

Arrangements for similar work in 432 acres of coupe III are in progress and the expenditure incurred during the year was Rs. 43.

The Nilgiris.—In Coonoor range, sandal coupes IV and V of Rangaswami Peak of 120 acres were tended at a cost of Rs. 199. In Segur range, sandal trees in coupes IV and V of 400 acres were tended at a cost of Rs. 100. In the Ootacamund range, weeding was done round the young growth in certain compartments in Arambi, Cairnhill and Brooklands by the subordinates.

(v) *General—Underplanting, improvement fellings, etc.*

Nilambur.—With a view to reclaim the areas for regeneration in the near future, the following failed areas of the second rotation were planted with cuttings of *Vitex negundo* at an espacement of 12 ft. by 12 ft.

	ACS.
Arevakode 12 (*b*)	1·34
Do. 13 (*b*)	1·12
Do. 14 (*b*)	2·19
Elenjeri 37 (*c*)	4·05
	8·70

The expenditure incurred was Rs. 20-5-6.

Bamboo seeds were sown in the following areas at an espacement of 20 ft. by 20 ft. in May 1929 and the seedlings tended :—

	ACS.
Edacode compartment 73 (*a*)	14·2
Do. 76 (*b*)	5·3
Do. 78 (*a*)	5·3
Elenjeri compartment 34 (*b*)	11·3
Do. 36 (*b*)	7·6
	43·7

The expenditure incurred was Rs. 67-14-6.

Seeds of Boga (*Tephrosia candida*) were sown in the following areas in June :—

		ACS.
Edacode compartment	65	6·8
Do.	75	2·2
Do.	67	2·1
		11·1

The sowing was not successful as all the areas were flooded. The expenditure incurred was Rs. 54-9-6.

Cuttings of *Vitex negundo* and seedlings of *Macaranga roxburghi* were planted in areas of bad grass in compartments 130, 131, 132, 133 and 134 of Panangode. 3·33 acres were planted with cuttings of *Vitex negundo* at an espacement of 12 ft. by 12 ft. and 19·94 acres with Macaranga seedlings at an espacement of 8 ft. by 8 ft. in July. The plants were freed of weed growth in August. The expenditure incurred was Rs. 29-13-3. The work was moderately successful.

Bamboo seeds were sown at stakes 12 feet apart in the grassy areas of Chathamborai plantations in June 1929. A double handful of seeds was sown at each stake. Sowing was done at 7,118 stakes on nearly 24 acres. Germination was good. The ultimate success is hard to determine. The expenditure incurred was Rs.45.

The object of introducing these species is to kill out coarse grass and to provide material for a good burn, when the area is clear-felled and regenerated.

Natural tree seedlings were freed of weeds and climbers in the following plantations at the cost noted against each :—

	RS.	A.	P.
Karimpoya 1901	71	11	0
Karimpoya 1907-A	20	6	6

The object is to assist the development of natural underwood, and when the weeding is done it is found that there are far more natural seedlings than one would imagine from an ordinary inspection.

Wynaad.—Undersowing of Xylia was done in 23 acres of the 1902 teak plantation at Alattur at a cost of Rs. 93.

Improvement fellings—North Mangalore.—Improvement fellings to assist the established regeneration of Someshwar timber coupe IV were carried out over 32 acres at a cost of Rs. 2 per acre.

Wynaad.—Three hundred and forty-five acres of natural forest in Sultan's Battery range were gone over and all trees, overmature or badly growing, which would not develop into useful timber, were felled. The marketable timber was sold and the stumps were trimmed for coppice.

The Nilgiris.—Selection and improvement fellings were done over 907 acres of compartment 17, Mudumalai at a cost of Rs. 1,931 and Rs. 336 respectively.

Five hundred and thirty-three trees were marked by the District Forest Officer in Benne teak plantation for extraction in 1930-31.

Marking in compartment 27 of the Mudumalai Working Plan area, 1,157 acres in extent, was done at a cost of Rs. 114.

CHAPTER IV.—EXPLOITATION.

The sale depots at Beypore, Nanjangod and Kasaragod continued to be in charge of the Forest Utilization Officer. A small quantity of timber from the Nilgiris was sent for sale at Nanjangod.

The overseas timber trade is being continued through Messrs. Peirce, Leslie & Co., and the following shows the stock consigned during the year :—

	C.FT.
Nilambur division—	
Laurel	949
Wynaad division—	
Laurel	7,062
Rosewood	383

The following sales were effected during the year :—

Wynaad division stock.

	C.FT.
Rosewood	521
Laurel	5,541

The average net realizations excluding the Forest Utilization Officer's overheads were Rs. 2-3-0 per cubic foot, the highest being Rs. 6 for Laurel and Rs. 8 for rosewood, the average production cost being about Rs. 1-10-0.

Nilambur division

	C.FT.
Teak sawn (previous year)	958
Laurel	171

The sale rates were Rs. 4-11-0 and Re. 0-12-0 respectively against the production cost of Rs. 2-11-0 and Rs. 1-10-6 respectively. The results are not favourable on the whole.

All the saw mills pertaining to this circle have been closed as detailed below, as the results of working of the mills were not favourable :—

Parappa and Chedleth mills on 31st March 1930.

Beypore mill on 30th April 1930.

The Olavakkot mill was also closed in November 1929.

In view of the closure of the mills, the details relating to their working are not of importance. The mills continued to be under the control of the Engineering branch.

The following are the details of the intake, the outturn and the percentage of sawn material obtained from the intake :—

	Intake.	Outturn.	Percentage.
	C. FT.	C. FT.	
Beypore	85,865	48,677	57
Parappa	86,944	50,001	57
Chedleth	66,692	25,132	* 38

The supply of sleepers was continued from all divisions except the Nilgiris as in last year. The total number of sleepers supplied by the District Forest Officers was—

	I class.	II class.	Total.
Broad gauges	22,377	1,234	23,611
Meter gauges	5,775	385	6,160

against 18,386 and 6,265 respectively, in the previous year.

Note.—(1) In addition, the Forest Utilization Officer supplied from the stock of sleepers, sawn at the Parappa mill 167 broad gauge and 412 meter gauge Xylia sleepers.

(2) Chenat Nair Exploitation figures are not included for want of details.

* The yield is low as was the case last year, when it was explained to be due to the poor quality of the logs.

The statement attached gives details according to divisions and species :—

Name of division.	Size of sleepers.	Hopea.			Xylia.			Mesua.			Total for all species.			Percentage of rejections.
		Number of sleepers presented.	Number of sleepers passed as		Number of sleepers presented.	Number of sleepers passed as		Number of sleepers presented.	Number of sleepers passed as		Number of sleepers presented.	Number of sleepers passed as		
			I class.	II class.		I class.	II class.		I class.	II class.		I class.	II class.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
			NO.	NO.		NO.	NO.		NO.	NO.		NO.	NO.	
Mangalore, North ..	B G.	1,332	1,236	44	66	62	3	..	..	..	1,398	1,298	47	3·8
	M.G.	628	581	23	125	114	6	..	..	..	753	695	29	3·8
Mangalore, South ..	B G.	4,600	3,801	246	334	202	30	..	..	..	4,934	4,003	276	13·3
	M.G.	1,424	1,167	88	378	314	9	..	..	..	1,802	1,481	97	12·4
Wynaad	B.G.	..	..	..	..	..	..	3,476	3,077	140	3,476	3,077	140	7·5
	M.G.	..	..	..	..	..	..	1,187	1,061	53	1,187	1,061	53	6·1
Nilambur	B.G.	..	..	..	4,270	3,623	273	..	..	..	4,270	3,623	273	8·8
	M.G.	..	..	..	1,207	1,038	70	..	..	..	1,207	1,038	70	8·2
Palghat	B.G.	..	..	..	..	..	..	11,343	10,376	498	11,343	10,376	498	4·1
	M.G.	..	..	..	..	..	..	1,700	1,500	136	1,700	1,500	136	3·8
Total ..	B.G.	5,932	5,037	290	4,670	3,887	306	14,819	13,453	638	25,421	22,377	1,234	7·1
	M.G.	2,052	1,748	111	1,710	1,466	85	2,887	2,561	189	6,649	5,775	385	7·4

NOTE.—The percentage of rejections for the various species was as under—

	B.G.	M.G.
Mesua	4·9	4·7
Hopea	10·2	9·4
Xylia	10·2	9·3

Compared with last year the percentage has risen in the case of Mesua and Hopea, while Xylia shows a slight reduction.

As regards the financial aspects of sleeper operations, there are difficulties in embodying accurate details in this report as the extraction and disposal are spread over two years and moreover, some of the stock of scantlings obtained from side slabs, etc., remain unsold. Though instructions were issued to the District Forest Officers to furnish the information in the annual report some District Forest Officers have not been able to do so.

It is necessary to point out that attempts to compare the net value per cubic foot of timber cut for sleepers with the value of similar timber in the log are liable to be very misleading because the great majority of the trees that we fell for sleepers would be quite unsaleable at a profit if they were simply converted into logs.

The following details which are based on estimates in some cases are furnished:—

North Mangalore.—Sleepers extracted are supplied at Mangalore.

	C.FT.
Volume of logs converted.	10,231
Yield obtained—	
Broad gauge ...	1,398
Meter gauge... ...	753
Other sawn materials ...	1,210
	RS.
Expenditure—	
Felling, dragging, sawing, transport to sale depots ...	8,366
Forest Utilization Officer's overheads for sleeper passing at 1 anna 5 pies per cubic foot of sleeper, for 5,500 c.ft.	487
Total ..	8,853

	RS.
Revenue realized or expected—	
Sleepers including rejections	13,195
Other sawn materials.	2,039
Total ...	15,234

Result + 6,381 or say 10 annas per cubic foot of log.

The operation has been found to be financially advantageous.

South Mangalore.—Sleepers from this division were supplied at two centres, viz., Mangalore and Kasaragod. Those at Kasaragod were supplied from Nalkur and Aletti reserves, while those at Mangalore were from Porkala.

Mangalore centre.

	C.FT.	RS.	Revenue. RS.
Logs converted	3,015		
Yield—			
Broad gauge	139		
Meter gauge	324		
Other sawn materials ...	318		
Expenditure—			2,264
Cost of production at centre ...		1,394	Net Rs. + 789 or say As. 4–2 per cubic foot. This is less than the estimated profit by sale in the log which is As. 5–4 per cubic foot.
Forest Utilization Officer's overheads at As. 1–5 per cubic foot of sleeper.		81	
		1,475	

Kasaragod centre.

	C.FT.	RS.	Estimated revenue. RS
Logs sawn	43,984		
Yield—			
Broad gauge	4,411		
Meter gauge	1,318		49,167
Other sawn materials ...	6,987		
Expenditure up to production centre		27,907	
Forest Utilization Officer's overheads.		1,542	
		29,449	Net Rs. + 19,718 or As. 7–2 per cubic foot.

NOTE.—One hundred and fifty-four broad gauge and 63 meter gauge passed after 1st April 1930 and taken towards the previous contract have been included in this financial statement.

(There have been no log sales from the locality—so no useful comparison is possible.)

Wynaad.—The District Forest Officer has not submitted a statement. The following is furnished on the basis of the previous audit report.

		Revenue. RS.
Number presented—		On passed sleepers 3,077 at Rs. 8–4–0. 25,385
Broad gauge	3,476	And 140 at Rs. 5–8–0. 770
Meter gauge	1,187	1,061 Meter gauge at Rs. 3. 3,183
Production cost at Rs. 6–4–0 per Broad gauge and Rs. 3–2–0 per Meter gauge = Rs. 25,434.		53, II class at Rs. 2 ... 106
		29,444

Net Rs. + 4,010 for the transaction.

This will be reduced if logs rejected, etc., are taken into account. The sanctioned Part II scheme for 1929-30 provided for a profit of As. 1-4 per cubic foot of log.

The fellings are undertaken specially for sleeper operations. There have been no log sales from this locality.

Nilambur division.—The sleepers are supplied at Nilambur.

	C.FT.		Revenue.	RS.
Xylia—				
Quantity sawn	29,579			
Outturn—			Sleepers	33,688
Broad gauge	4,060		Scantlings	1,757
Meter gauge	1,254			
Scantlings	2,349			35,445
Expenditure including Forest Utilization Officer's overheads, based on production cost in the audit report.				
	Rs. 21,235	Profit. Rs. 14,210. or Re. 0-7-9 per cubic foot.		

Palghat.—The supplying centre is Melattur.

	C.FT.		RS.
Mesua—			
Logs converted ...	62,077		
Yield—			
Broad gauge ...	9,958		
Meter gauge ...	1,700		
Expenditure—Based on Part II schemes.		Revenue on passed sleepers.	
Production costs on the basis of details in Part II scheme including Forest Utilization Officer's overheads, Rs. 5 per broad gauge and Rs. 2-9-0 per meter gauge.		Numbers.	
		Broad gauge I 10,376	
		,, II 489	= 93,113
		Meter gauge I 1,700	
		,, II 136	
		Net profit	32,042
Number of sleepers presented—		No extraction in the log form is practicable, and the sleeper operations have been financially advantageous.	
11,343 broad gauge.			
1,700 meter gauge.			
Expenditure on the above—			
Rs. 61,071			

(a) System of Management.

(i) *Major Forest produce.*

The subjoined statement shows the areas exploited during the year under different silvicultural systems (Chenat Nair figures are not included as information is not available).

	Area in acres.	
	For timber.	For fuel.
Clear-felling	514	6
Selection fellings (including subsidiary fellings)	5,166	...
Improvement fellings	1,252	...
Miscellaneous fellings (i.e., removal of dead and top-broken trees in Nilambur division)	1,072	...
Coppice with standards	...	4
Simple coppice	...	1,431

Bamboo fellings—17,413 acres.*

Sandal fellings.—Regulated fellings as well as unrestricted fellings on areas affected by spike took place in the Nilgiris and scattered fellings were also done in the unreserves and kumaki areas of South Kanara.

Timber.—The following shows the details of felling:—

Clear-felling—South Mangalore.—Thirty acres in compartment V of Parappa, the yield being 13,120 cubic feet, 35 acres in Sampaje reserve, the yield being 11,856 cubic feet.

Wynaad.—Seventy-two acres in Begur coupe II and 60 acres in Chedleth coupe II.

Nilambur.—One hundred and fifty-seven acres in the natural forests of Amarampalam range, the yield being 78,068 cubic feet, 40 acres in natural forests of Nilambur range, the yield being 18,251 cubic feet, and 90 acres in the plantations (16 in Amarampalam and 74 in Nilambur), the yield being (6,294 plus 84,524) = 90,818 cubic feet.

The Nilgiris.—Thirty acres were clear-felled in compartment 6, of Mudumalai, the yield being 6,985 cubic feet.

Six acres of Brooklands plantation containing Acacia and bluegum were clear-felled for being replanted with *Eucalyptus pillularis*, the yield being 27,600 cubic feet of fuel.

* Does not include Nilambur where collection was made departmentally for floating purposes.

The following shows the details of areas of selection and improvement fellings:—

Selection fellings.

	Acs.
North Mangalore	566
South Mangalore	864
Wynaad—	
Begur and Chedleth ranges	996
Kannoth range (Peria reserve)	990
Nilambur—	
Amarampalam range	960
Nilambur range	78
Palghat sleeper fellings (Silent Valley)	712
Total ...	5,166

Improvement fellings.

The Nilgiris (Mudumalai range)	907
Wynaad (Sultan's Battery range)	345
Total ...	1,252

Thinnings.—These were carried out over 1,012 acres of teak plantations in Nilambur, the yield being 192,571 cubic feet, of which 66,700 cubic feet of poles were sold locally with advantage—as compared with Beypore rates, after paying for transport.

In the Nilgiris, 4·37 acres (*Eucalyptus eugenioides*) was thinned, the yield being 5,300 cubic feet.

Fuel.—Fuel coupes are worked in all divisions except Wynaad and Nilambur.

In the Nilgiris, Muthinad Coupe I of 4 acres was worked under the system of coppice with standards. The rest of the fuel coupes in the circle were worked under "simple coppice."

Sandalwood.—This is confined to North and South Mangalore and the Nilgiris, the outturns being about 2 tons, 6 tons and 21 tons (of which 18½ tons were from spiked dead trees) respectively.

(ii) *Minor forest produce (including bamboos).*

Minor forest produce.—This was, as usual, leased out to contractors everywhere except in the Mudumalai range of the Nilgiris where departmental collection was continued.

Bamboos.—Bamboos are collected departmentally for floating purposes in the Nilambur division. Bamboo coupes are leased out elsewhere.

Fodder grass.—The Military department continued to harvest grass in Walayar and Chenat Nair reserves of Palghat division, the quantity collected being 64½ tons.

Grazing.—This was, as usual, controlled by the issue of permits, the revenue realized being Rs. 30,493.

(*b*) AGENCY OF EXPLOITATION.

(i) *Departmental agency.*

Timber in all the divisions, firewood in the Nilgiris (with the exception of one coupe), sandalwood, bamboos in Nilambur and minor forest produce in the Mudumalai range of the Nilgiris were worked departmentally.

Of the timber extracted, Mesua, Hopea and Xylia were converted, as far as possible, into sleepers.

About 175,000 cubic feet of logs were sawn into sleepers.

About 29,042 cubic feet, mostly of Poon (*Calophyllum*) and *Dichopsis elliptica*, from the Silent Valley were converted into cart-making materials, mostly kolmarams, and transported to Olavakkot as in the previous year.

The following quantities were supplied to the mills for conversion :—

	C.FT.
Parappa mill	52,482
Chedleth mill	58,776
Beypore mill	85,361

As regards Kasaragod depot, the Forest Utilization Officer's report shows that the log sales were not very encouraging, the total sales being 6,607 cubic feet out of a total stock of 11,762 cubic feet. The sale of scantlings was also not satisfactory. The sales during the year amounted to 29,046 cubic feet, and the closing stock was 50,655 cubic feet. This is attributed to late receipt of stock from the mills, their poor quality and the paucity of demand.

In the case of Beypore depot, the quantity received during the year was 314,989 cubic feet of which 85,865 cubic feet were converted at the mill, 158,719 cubic feet were sold, and the closing stock was 113,974 cubic feet against the opening stock of 44,351 cubic feet, The Forest Utilization Officer's reports show that the demand for teak was poor in the latter half of the year.

As regards sawn materials, the sales during the year were practically equal to the receipts from the mill.

Nanjangod depot.—The sale of logs was satisfactory, the sales during the year amounting to 50,784 cubic feet, the balance at

the end of the year being 3,543 cubic feet. As regards scantlings, 20,924 cubic feet were received, and 12,450 cubic feet were sold. The large closing stock of 22,580 cubic feet was attributed to late receipt from the mill.

The trial sale of Nilgiris timber proved successful, the quantity involved being 1,705 cubic feet, which realized Rs. 4,686.

Sandalwood.—The stock of North and South Mangalore was sold at Mangalore. In the Nilgiris, the Segur range stock was sold locally while that of Coonoor was sold at Satyamangalam, the revenue being Rs. 40,380.

Fuel.—An experiment was made in converting Xylia top-ends in Nilambur into fuel and 539 stacks (6 ft. by 4 ft. by 3 ft.) were sold. The usual departmental operations in the Nilgiris continued.

Bamboos.—The departmental collection was, as usual, confined to Nilambur, for floating purposes.

Minor forest produce.—This was, as usual, confined to Mudumalai range of the Nilgiris.

Hopea bark was collected in North and South Mangalore and supplied to Messrs. Gordon, Woodroffe & Co., for tanning, the quantity collected being 73 tons.

Elephant tusks collected were disposed of through the Forest Utilization Officer.

(ii) *By purchasers.*

Major produce.

Timber.—Extraction was, as usual, confined to the removal of a few dead and windfallen trees.

In Nilambur, in the Nellikutha clear-felling area of 157 acres, the right of working the unmarketables was sold. The contractor removed 26,183 cubic feet, valued at Rs. 3,600 at the tendered rate. In former years this would have been burnt.

The conversion of top-tends in Pulimunda into spokes and felloes was continued by the contractor.

Fuel.—Coupes were sold standing in North and South Mangalore and Palghat. In the Nilgiris, only one coupe was sold standing in Coonoor range. The Badagas on the Nilgiris removed dry fuel on permits at Re. 1 per house.

The depression in the tile trade continued in Mangalore and affected the sale of the fuel coupes.

Minor forest produce.

Bamboos.—Coupes were leased out in all divisions except Nilambur and North Mangalore. The bamboos in North Mangalore flowered and died some years ago.

Minor forest produce.—This was leased out to contractors.

In North Mangalore, catechu trees in Wandse series did not find a sale.

The right to collect Dhupa (*Vateria indica*) fruit in Wynaad and Palghat and North and South Mangalore was leased out for a long term to the Malabar Estates, Limited.

(iii) & (iv) *By right-holders and free grantees.*

The subjoined statement shows the produce removed by free grantees and right-holders :—

	Timber in thousands of cubic feet.	Value.	Fuel in thousands of cubic feet.	Value.	Bamboos.		Grazing value.	Other minor forest produce, value.	Total value.
					Number.	Value.			
		Rs.		Rs.		Rs.	Rs.	Rs.	Rs.
Free grantees ..	3	706	..	..	1,210	16	287	(a) 577	1,583
Right-holders ..	17	*7,936	6	216	..	..	213	..	8,365
Total ..	20	8,642	6	216	1,210	16	500	577	9,948

The above does not take into account the value of produce removed under the concessions allowed to the ryots all over South Kanara. The value must be considerable but it cannot be given with even approximate accuracy as the concessions are quite unregulated.

Outturn and sources of forest produce.

	Timber in thousands of cubic feet		Fuel in thousands of cubic feet.		Bamboos, value.		Grazing and minor forest produce.	
	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.
					Rs.	Rs.	Rs.	Rs.
By Government agency.	942	1,257	511	565	8,917	10,768	2,144	4,914
By purchasers ..	161	230	1,266	1,675	26,129	16,554	81,029	73,658
By free grantees.	4	3	1	..	21	16	2,787	1,077
By right-holders.	12	17	..	6	..	..	..	..
Total ..	1,119	1,507	1,778	2,246	35,067	27,338	85,960	79,649

NOTE.—Does not include Chenat Nair exploitation figures.

* Relates to removal from kumaki lands.

(a) Includes cost of metal removed by the Public Works Department and District Board to the value of Rs. 555.

Timber.

Government Agency.—The output of the year exceeded that of the previous year by 315,000 cubic feet, the divisions responsible for the increase being Wynaad, Nilambur and Palghat.

In the Wynaad, it amounted to 166,000 cubic feet, and was due to the introduction of the new working plan under which three coupes were worked instead of one in each of the ranges of Begur and Chedleth. Even so, the possibility under the new working plan was not felled as the working of a complete felling series in each of these two ranges is held in abeyance, largely on account of the demand for *Terminalia tomentosa* timber being very limited.

In the Nilambur division the increase was 129,000 cubic feet and was due to the fact that the revised working plan was fully followed, the area gone over during the year being 2,259 acres against 1,142 in the previous year.

The increase in Palghat was due to extensive sleeper operations in the Silent Valley.

Purchasers.—There was an increase of 69,000 cubic feet.

Reserves	...+ 47,000 cubic feet.
Unreserves	...+ 22,000 ,,

Reserves.—The increase was mainly in Palghat and Wynaad. In Palghat, the figures are stated to be based on contractor's accounts and in Wynaad, it is reported to be due to greater demand.

Unreserves.—The increase was practically all in North and South Mangalore and is ascribed to assignment of lands on darkhast.

Fuel.

Government agency (+54,000 cubic feet).—There was an increase of 39,000 cubic feet in Nilambur and of another 39,000 cubic feet in the Nilgiris, while there was a decrease of 20,000 cubic feet in North Mangalore and 4,000 cubic feet in Palghat. The increase in Nilambur was due to the conversion of Xylia top-ends into fuel and that in the Nilgiris, was due to a larger yield in areas worked under the revised working plan. The decrease in North Mangalore is due to the fact that there was no conversion of top-ends in the Coondapoor range.

Purchasers—

Reserves	+ 365,000 cubic feet.
Unreserves	+ 44,000 ,,

Reserves.—The increase is chiefly in Palghat (to the extent of 215,000 cubic feet) but the District Forest Officer doubts the accuracy of figures furnished by contractors. There is an increase of

7,700 cubic feet in South Mangalore, and of a similar amount in the Nilgiris division due to larger areas and better yield in South Managlore and to the yield of two coupes leased out in the Nilgiris.

Unreserves.—About half the increase was in North Mangalore, and is explained, as being due to larger assignments and the other half in Wynaad is due to the collection of the lease amount of Tourimalla estate for 1928-29 and 1929-30 in the current year.

Bamboos.

Government agency (+*Rs.* 1,851).—The increase was mainly in Nilambur due to larger extraction for floating purposes.

Purchasers (—*Rs.* 9,575).—The decrease is accounted for by the fall in revenue in Palghat, where in 1928-29 the prices obtained in Walayar for coupes were abnormally high.

Grazing.—The number of cattle admitted to graze on payment was 121,004 against 123,392 in the previous year. There was a fall in the number of cattle at the Kulgunda cattle fair.

Minor forest produce (including grazing value).

Government agency (+ *Rs.* 2,770).—The increase is due to the collection and sale of Hopea bark in North and South Mangalore. Against this, there was a fall in the minor forest produce amount of the Nilgiris and in the value of ivory sold.

Purchasers (—*Rs.* 7,371).—There was an error of Rs. 3,000 in the last year's figures relating to the Nilgiris. So, the actual difference comes to Rs. 4,391. There was a fall of about Rs. 6,000 in North and South Mangalore and Nilambur, due to poor prices, and non-sale of some catechu trees in North Mangalore and to there being no lease of canes in the Nilambur division during the year. Against this, there was an increase of about Rs. 3,000 in Palghat due to the Dhupa (*Vateria indica*) lease and to better prices for minor forest produce.

Free granates (—*Rs.* 1,710).—This was in the Nilgiris and was due to the less quantity of road material, etc., removed free by local bodies.

CHAPTER V.—FINANCIAL RESULTS.

The following table shows the revenue and the expenditure of the Circle, including that relating to the Chenat Nair Exploitation unit as well as that resulting from the activities of the Forest Utilization Officer and the Forest Engineer. With regard to Nilambur, however, the adjustments pertaining to the year have not been made in full within the official year, and the figures in the subjoining statement include only such adjustments as have been effected by the Accountant-General within the year.

Revenue.			Expenditure.			
1928-29.	——	1929-30.	——	1928-29.	——	1929-30.
RS.		RS.		RS.		RS.
9,67,800	As per Form 39 ..	9,28,414	8. b. Conservancy and works.	3,90,366	8-*b. Conservancy and Works*—	
	Adjustments on account of Forest Utilization Officer.	2,65,574	52. A. Conservancy and works.	71,760	As per Form 39	4,66,030
	Credited in the V Circle.	3,713	,, Regeneration Establishment.	28,289	Forest Utilization Officer—	
	Chenat Nair non-commercial activities. (1st November 1929 to 31st March 1930).	64,239	,, Investments in Government Commercial undertakings.	487	Wynaad	2,400
	Forest Engineer (Parappa Sawmill).	987	8. c. Establishment ..	4,10,529	South Mangalore	5,299
	Forest Engineer (Chedleth Saw mill).	2,151	Total ..	9,01,431	Parappa saw mill	* 42,950
		12,65,078			Chedleth saw mill	* 50,058
1,279	Refunds	1,752			Forest Engineer (Buildings and roads) ..	266
9,66,521	Total ..	12,63,326			Chenat Nair non-commercial concern	63,099
						6,30,102
					52-*A. Capital Outlay*—	
					As per Form 39—Works	77,037
					Establishment	27,504
					Investments in Government Commercial undertakings.	27,321
					Recoveries of a capital nature	—17,866
					Forest Utilization Officer (Beypore Tope) ..	2,051
					Chenat Nair	304
					Forest Engineer (Buildings and roads) ..	834
						1,17,185
					8-*c. Establishment*—	
					As per Form 39	4,41,761
					Forest Utilization—Officer—	
					Wynaad	1,610
					South Mangalore	2,516
					Chenat Nair—Non-commercial	13,359
						4,59,246
					8. Loss in Chenat Nair concern	79,332
					Total ..	12,85,865

* Taken from audit report.

	1928–29.	1929–30.
	RS.	RS.
Deficit		22,539
Surplus	65,090	...

The deficit is due to the inclusion of Chenat Nair figures which show loss of Rs. 79,332.

The revenue on sales through the Forest Utilization Officer is given below :—

	RS.
Nilambur division—	
(Beypore depot)	* 3,70,197
Wynaad division—	
(Mysore and Nanjangod)	1,55,534
South Mangalore—	
(Kasaragod)	1,05,281
Olavakkot	67,321
	6,98,333

The Forest Utilization Officer's overheads, apart from depot expenses, on sales amounted to—

	RS.
Nilambur	13,794
Wynaad	6,723
South Mangalore	3,673
Olavakkot	2,915
	27,105

The financial position of each of the divisions is dealt with below. The figures in some cases appear misleading as, for instance, in the case of Nilambur revenue. The reason for this is that the revenue credited in the division which is taken from the Accountant-General's figures of adjustment includes the net revenue from Exploitation and the gross revenue and gross expenditure of the commercial activities are not shown. A further complication which has to be considered is the fact that the figures of adjustment by the Accountant-General refer partly to the year under report and partly to the previous year.

* Analysed from commercial accounts.

Division.	Revenue credited.			Expenditure.		
	In the division.	Outside the division.	Total.	In the division.	Adjustments.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
Mangalore, North ..	1,03,683	1	1,03,684	95,583	..	95,583
Mangalore, South ..	86,922	1,05,281 987 2,070	1,89,260	1,44,759	50,765	1,95,524
Wynaad	1,95,748	217 1,55,534 2,151	3,53,650	3,21,954	54,068	3,76,022
Nilgiris	1,62,553	32 3,713	1,66,298	1,39,599	..	1,39,599
Nilambur	1,88,745	4,419 865	1,94,029	* 86,170	2,051	88,221
Palghat	1,90,886	307	1,91,193	1,68,864	1,100	1,69,964
Direction	4,125 — 3,152	..	973	64,858	..	64,858
Chenat Nair Exploitation.	..	64,239	64,239	..	1,56,094	1,56,094
Total ..	9,23,510	3,39,816	12,63,326	10,21,787	2,64,078	12,85,865

The financial results of each division are discussed below :—

North Mangalore (+*Rs.* 8,505).—There are no items calling for remarks. There was a small surplus in the division. The surplus would have been greater but for the fact that 26,000 cubic feet of timber remained unsold.

South Mangalore (— *Rs.* 6,426).—This is exclusive of the Forest Utilization Officer's overheads which were about Rs. 3,700, but includes mill running charges of Parappa mill according to commercial books. There is an improvement as compared with the last year when the deficit was approximately Rs. 32,000. There was an increase in the timber revenue to the extent of Rs. 10,000, due to the realization of the amount of the previous year's outstandings. The Forest Utilization Officer's realizations showed an

* Includes pay and travelling allowance of Mr. M. S. Rangaswami, Extra Assistant Conservator and leave allowance of officers paid in Nilambur to the extent of Rs. 5,225.

Note.—The pay and travelling allowance of the Inspector of Livestock and his establishment adjusted in Direction is adjusted as under :—

	Rs.
North Mangalore	265
South Mangalore	895
Wynaad	2,123
Nilambur	2,123
Palghat	398
Nilgiris	597
Second Circle	166
Fifth Circle	1,725
Total ..	8,292

improvement of Rs. 37,000. There was an increase of Rs. 6,000 in sandalwood sales. Against this, there was a decrease of Rs. 12,000 under timber, removals by purchasers, there being no sale of standing growth as in the previous year.

There was a large closing stock on hand, the stock of sawn materials being 50,655 cubic feet.

The average cost of production and the average selling rate at Kasaragod depot is furnished below :—

	Average cost of production per cubic foot.	Average selling rate per cubic foot.	Quantity sold	Net result per cubic foot.
	RS. A. P.	RS. A. P.	C.FT.	RS. A. P.
Logs	0 11 3	0 10 11	6,609	— 0 0 4
Sawn materials supplied by the District staff.	1 7 11	1 9 11	1,327	+ 0 2 0
Sawn materials supplied from Parappa Saw mill.	1 13 4	1 9 11	27,723	— 0 2 9

Similar figures for Mangalore depot are :—

Logs	0 9 10·5	0 13 1	19,529	+ 0 3 5·5
Sawn materials supplied	1 6 4·5	1 7 11	1,433	+ 0 1 6·5

Details of production costs of material sawn at the Parappa mill are given below :—

[Case of one cubic foot of timber required to produce one cubic foot of sawn material (86,694 cubic feet being converted into 57,001 cubic feet).]

	Per cubic foot. RS. A. P.
At As. 6-6 per cubic foot of log	0 11 3·70
* Conversion charges as per audit report ...	0 8 0·70
Carting sawn materials to Kasaragod	0 4 5·90
Depot expenses	0 2 0·60
Forest Utilization Officer's overheads ...	0 0 11·20
Commission	0 2 5·70
Total ...	1 13 3·8
	or 1 13 4

	RS. A. P.
* Direct sawing	0 4 6·4
Depreciation	0 1 3·0
Overheads—Chief Forest Engineer, Forest Engineer, etc.	0 1 7·20
Interest	0 0 8·1
	0 8 0·70

The following shows the cost of unsawn logs supplied direct to Kasaragod depot :—

	Per cubic foot. RS. A. P.
Felling and conversion	0 0 6
Dragging	0 0 11
Carting and rafting	0 6 3
* Divisional overheads	0 1 11
Depot expenses and Forest Utilization Officer's overheads	0 1 8
Total ...	0 11 3

Wynaad (*Rs.* - 22,372).—The figures furnished by the Dis- Forest Officer in his report do not include the expenditure incurred by the Forest Engineer in connexion with the saw mill. The expenditure shown in the audit report was Rs. 50,058.

As the audit of the division, in commercial form, has not been completed, figures dependent on commercial accounts have not been embodied.

Figures furnished in the audit report of the Saw Mills and Extraction division showed an expenditure of Rs. 33,258 on mill running charges and of Rs. 16,800 on transport of sawn timber to Nanjangod.

	RS. A. P.	Per cubic foot. RS. A. P.
Cost of log at mill site as per last year's report, required for 1 cubic foot of sawn material		1 9 5
Cost of sawing—		
Direct sawing charges	0 14 3	
Depreciation	0 2 3	
Overheads, Forest Engineer, Chief Forest Engineer, etc.	0 3 8	
Interest	0 1 0	
		1 5 2
Transport charges to Nanjangod sale depot		0 11 5
		3 10 0

	RS. A. P.
* District Forest Officer	0 0 9·2
Ranger	0 0 4·9
Other items	0 0 8·9
	0 1 11

Forest Utilization Officer's overheads on sales (depot expenses, commission and Forest Utilization Officer's overheads) amounted to As. 2-5·5 per cubic foot for logs and As. 5-0·8 per cubic foot for sawn materials.

The following sales were effected through the Forest Utilization Officer at Nanjangod :—

Log sales.—Fifty thousand seven hundred and forty-nine cubic feet, the average rate being Rs. 2-10-9 per cubic foot, last year's audited cost of delivery at Nanjangod being Rs. 1-4-3.

Sale of scantlings.—Twelve thousand four hundred and fifty-one cubic feet the average price being Rs. 2-6-3 per cubic foot whereas figures given above show the cost of production plus the Forest Utilization Officer's overheads to have been Rs. 3-10-0+0-5-0·8=3-15-0·8. At the Nanjangod depot the closing stock was 3,543 cubic feet of logs, and in the case of scantlings, 12,734 cubic feet of teak and 9,074 cubic feet of other species.

Nilambur.—The net profit of the exploitation unit was Rs. 1,71,189, out of which only Rs. 50,000 was adjusted within the year. The net result of regeneration and general forest administration was Rs. -7,967.

The actual figures of the year as furnished by the District Forest Officer are given below :—

EXPLOITATION UNIT.

	Net surplus. RS.
Balance profit of 1928–29 credited to 1929–30 accounts	74,370
Part profit of 1929–30 credited to 1929–30 accounts.	* 50,000

* Balance will be adjusted in 1930-31 accounts.

REGENERATION AND GENERAL FOREST ADMINISTRATION.

Revenue.

	RS.	RS.
1. Recovered by adjustments from the commercial concern	64,408	
2. Revenue realized by the District direct	12,427	
3. Revenue realized by the Forest Utilization Officer, pertaining to non-commercial units	4,492	
Total ...		81,327

Expenditure.

	Rs.	Rs.
1. District expenditure (including leave-salary adjusted by the Accountant-General)	87,243	
2. Expenditure incurred by the Forest Utilization Officer, pertaining to non-commercial units	2,051	
Total ...	89,294	—7,967
Total ...	...	1,16,403

The different figures making up the net profits of the Exploitation unit for the two years 1928–29 and 1929–30 are compared below :—

	1928-29.	1929-30.
	Rs.	Rs.
Profit on forest trading	10,916	26,392
Do. hand-sawn sleeper trading.	5,568	14,296
Do. log trading, Beypore ...	73,707	1,18,504
Do. overseas consignment trading.	...	1,831
Do. sawn timber trading, Beypore	36,604	25,727
Do. Olavakkot (i.e., for timber supplied to this mill from Nilambur)	17,981	...
Interest received	1,047	818
Other receipts	419	2,368
Total ...	1,46,242	1,89,936
Deduct interest on capital and other miscellaneous charges	21,872	18,771
Net profit ...	1,24,370	1,71,165

The variations are explained below :—

Forest trading—Increase.—Mainly due to the method adopted for valuation of thinnings. In 1928–29 they were valued at net sale prices. But this year they were only valued at average cost of production with reference to paragraph 3 of G.O. No. P. 737 Development, dated 4th April 1930 (orders on the audit report of 1928–29).

Hand-sawn sleeper trading—Increase.—Mainly due to the increase in the number of sleepers supplied to the railways as shown below :—

	1928-29. RS.	1929-30. RS.
Broad gauge—		
First class	2,090	3,623
Second class	48	273
Meter gauge—		
First class	848	1,038
Second class	14	70
Total ...	3,000	5,004

Log-trading—Beypore—Increase.—Partly due to the increased quantity sold and the higher rate obtained than in 1928-29 as shown below :—

	Quantity sold.	Average rate obtained per cubic foot.
	C. FT.	RS. A. P.
1928–29	153,329	1 5 2
1929–30	158,719	1 8 9

and partly due to the less cost of production as shown below :—

	Average cost of delivery at Beypore depot. RS. A. P. (per cubic foot.)
1928–29	0 8 9
1929–30	0 6 10·8

Sawn timber trading—Beypore—Decrease.—Mainly due to the less quantity of scantlings sold during the year as shown below :—

	C. FT.
1928–29	45,701
1929–30	36,604

The selling rates and the costs of production for the two years 1928–29 and 1929–30 are compared below :—

	Cost of production at Beypore sale depot per cubic foot including overheads.		Sale rate per cubic foot at Beypore.		Quantities sold.	
	1928-29.	1929-30.	1928-29.	1929-30.	1928-29.	1929-30.
			(*a*) *For logs.*			
Nilambur Range.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	C.FT.	C.FT.
Plantation teak	0 8 10·97	0 4 10·7	2 5 6	1 14 7	39,922	88,230
Miscellaneous species from natural forests	0 8 7·06	0 7 4·6	1 0 9	1 1 0	65,963	50,355
Amarampalem Range.						
Miscellaneous species from natural forests	0 11 4·32	0 10 4 0	..	..	..	..
Teak thinnings	0 12 7·61	0 9 6·3	(*a*) 0 13 7	(*a*) 1 1 10	47,444	20,134
Total	..	..	..	..	153,329	158,719

(*a*) Selling rate is only for poles and measurables.

Note.—Details for the cost of production are given below separately :—

(*b*) *For sawn timber.*

Handsawn sleepers (Xylia)—						
Nilambur range	1 1 10 ·8	1 3 3·9	2 7 3	2 6 11	7,974	13,837
Amarampalam range	1 13 6 ·2	1 7 5·6	2 7 3	2 6 11		
Beypore mill-sawn timber	2 8 4 ·9	2 4 11·1	2 15 1	3 1 8 1 10 9	(*a*) 30,960	(*a*) 26,066 1,338
Do.	2 3 7 ·9	2 1 10·8	4 11 0	3 10 11 2 10 10	(*b*) 10,089	(*b*) 4,040 39
Beypore mill-sawn timber (seasoned)	..	5 5 7·8	..	6 8 4	..	644
Rejections and other sales	2 3 7 ·9	0 2 0·7	1 1 5	0 11 6	4,652	4,477

(*a*) Quantity sold through the agent and expenditure figure includes his commission.

(*b*) Work orders.

Note —1. Details for the cost of production are given below separately.

2. Olavakkot mill-sawn timber (obtained from logs supplied from Nilambur) is not shown in the above statement as the audit of the Chenat Nair exploitation division is not over yet.

Details for the cost of production are furnished below :—

(*a*) *For logs.*

	Plantation teak.				Miscellaneous species natural forest.			
	1928-29.		1929-30.		1928-29.		1929-30.	
Nilambur Range.	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	
1. Felling, conversion, dragging, carting, etc., up to riverside depots.	0 3 6·65		0 1 2·4		0 1 2·47		0 2 4·7	
2. Overheads and other miscellaneous charges.	0 2 0·63		0 1 8·4		0 2 0·63		0 1 8·4	
3. Floating charges to Beypore ..	0 3 3·69		0 1 11·9		0 5 3·96		0 3 3·5	
Total cost of logs at Beypore per cubic foot.	0 8 10·97		0 4 10·7		0 8 7·06		0 7 4·6	
Amarampalem Range.								
1. Felling, conversion, dragging, carting, etc., up to riverside depots.	0 6 7·16		0 4 0·7		0 5 3·87		0 4 10·4	
2. Overheads and other miscellaneous charges.	0 2 0·63		0 1 8·4		0 2 0·63		0 1 8·4	
3. Floating charges to Beypore ..	0 3 11·82		0 3 9·2		0 3 11·82		0 3 9·2	
Total cost of logs at Beypore per cubic foot.	0 12 7·61		0 9 6·3		0 11 4·32		0 10 4·0	

(*b*) *For mill-sawn timber.*

Beypore saw mill.

	1928-29. C. FT.			1929-30 C.FT.		
Quantity of logs converted	(*a*) 86,090			(*b*) 85,865		
Yield	45,281			48,677		
Percentage of outturn	52·6			56·7		
Cost of timber to yield 1 cubic foot of sawn material	1	0	6·62	1	0	3·6
Handling expenses	0	0	5·03	...		
Direct sawing charges	0	9	1·29	0	8	7·6
Depreciation	0	1	6·59	0	0	10·8
Overheads	(*c*) 0	2	7·29	(*c*) 0	1	8·4
Interest on capital	0	0	7·08	0	0	6·8

	C.FT.
(*a*) All teak	
(*b*) Teak	53,821
Poomarudu (Terminalia paniculata) ..	31,707
Irul (Xylia)	337

(*c*) Vide statement (*c*) on next page.

Expenses of sale.

	Rs.	A.	P.	Rs.	A.	P.
Binding and transport charges ...	0	1	3·00	0	1	8·7
Share of depot expenses	0	1	8·00	0	2	3·2
Share of Forest Utilization Officer's overheads	0	1	11·00	0	1	9·7
Total cost per cubic foot for sales other than through agent	2	3	7·9	2	1	10·8
Add for commission paid on sales to agent	0	4	9·0	0	3	0·3
Total cost per cubic foot for sales to agent	2	8	4·9	2	4	11·1

(*c*) *Details for the overheads shown above are*—

—	1928-29.			1929-30.			Rate per cubic foot.					
							1928-29.			1929-30.		
	Rs.	A.	P.	Rs	A.	P.	Rs.	A.	P.	Rs.	A.	P.
General overheads, Forest Engineer	4,815	0	0	3,697	2	1	0	1	8·42	0	1	2·58
General overheads, Central stores	1,625	0	0	533	8	6	0	0	6·89	0	0	2·10
Chief Forest Engineer, Supervision	600	0	0	600	0	0	0	0	2·54	0	0	2·37
Audit fee	250	0	0	250	0	0	0	0	1·06	0	0	0·99
Leave and pension ..	90	0	0	94	0	0	0	0	0·38	0	0	0·37
Total ..	7,380	0	0	5,174	10	7	0	2	7·29	0	1	8·41

Production figures for Olavakkot mill are not available as the audit of Chenat Nair is not yet completed.

The Nilgiris.—For the first time the division showed a surplus of Rs. 26,699, and this is due to some exceptional items, viz., the extraction of a large quantity of spiked sandalwood, sale of accumulated timber stock and realization of over Rs. 18,000 in one case being the value of timber on land assigned to a planter by the Revenue department.

Palghat (+*Rs.* 21,231).—The satisfactory surplus was due to sleeper operations in the Silent Valley.

Chenat Nair.—The concern showed a loss and has been closed but the final audit is not yet over.

The important variations between 1928–29 and 1929–30 are explained below :—

REVENUE.

VIII. (a) Timber and other produce removed by Government agency—Sandalwood (+*Rs.* 22,388).—This was due to the extraction of spiked sandal trees in the Nilgiris and to increased yield obtained from trees extracted in South Mangalore.

Timber (+*Rs.* 1,35,119).—About Rs. 78,000 was in Palghat and was due to the adjustment of the value of sleepers, about Rs. 18,000 was in the Wynaad and Rs. 27,000 in the Nilgiris due to larger sales and Rs. 10,000 in South Mangalore due to realization of previous outstandings.

Firewood and charcoal (— *Rs.* 6,159).—The collections in 1928–29 were high, due to realization of previous outstandings.

VIII. (b) Timber and other forest produce removed by consumers and purchasers—Forest department—Timber (— *Rs.* 17,565).—There was no sale of standing growth as in the case of Mukkuda plantation of South Mangalore in the previous year.

Firewood and charcoal (+*Rs.* 15,946).—This was mainly in Palghat due to very good prices obtained for Bolampatti fuel coupes.

Bamboos (— *Rs.* 9,943).—Rupees 9,425 was collected before 31st March 1929 on account of the final instalment of a four-year bamboo lease, while there was no such collection during the year under report.

Revenue department—Timber (+*Rs.* 22,743).—This was practically all in the Nilgiris on account of tree value on darkhast land.

VIII. (d) Profit or loss from commercial concerns (— *Rs.* 93,300).—The amount included in the accounts of 1928-29 included the entire profit of 1927-28 and also part of 1928-29, while the 1929-30 figures include part of 1928-29 and part of 1929-30.

VIII. (e) Miscellaneous—Other sources (— *Rs.* 19,551).—Due to fewer elephants being sold.

VIII. (g) Recoveries of indirect charges from Government commercial undertakings (— *Rs.* 52,289).—See note above against profit or loss from Government commercial concerns.

EXPENDITURE.

8. *(b) Conservancy, Maintenance and Regeneration—Timber* (+*Rs.* 3,18,342).—An increase of Rs. 2,64,078 is represented by the inclusion of the figures relating to the Forest Utilization Officer, the Forest Engineer and the Chenat Nair concern. There was an increase of Rs. 53,000 in divisions which occurred chiefly in the Wynaad and Palghat due to expansion of operations.

Roads and bridges (+*Rs.* 8,295).—This was mainly in the Wynaad due to first year repairs to the Chedleth-Chikkanji road costing Rs. 4,500 and to special repairs carried out to certain other roads.

Regeneration (+*Rs.* 6,441).—The increase is spread over all divisions except South Mangalore and Nilambur and is due to extensive areas being under regeneration.

52-*A. Capital Outlay.*—The total expenditure in 1929-30 was Rs. 77,037 (exclusive of Rs. 1,138 spent in the Engineering branch) against Rs. 71,760 in the previous year. There was a reduction of expenditure under Purchase of livestock and an increase under Communications and buildings.

As regards establishment, the expenditure under 52-A (*f*) Regeneration, which relates to Nilambur, was Rs. 27,054 against Rs. 29,029 in the previous year.

Investments in Government commercial undertakings (+*Rupees* 26,395).—The expenditure was on the construction of a new road from Nedungayam to Karulai.

Receipts on capital account deducted (— *Rs.* 17,866).—This relates to the adjustment of half the cost of the revised working plan for Nilambur.

8. *c. i. District Establishments* (+*Rs.* 31,234).—The chief variations were—

	RS.
Pay of officers—Non-voted	+13,830
Do. Voted	+ 6,706
Travelling allowance, fixed travelling allowance and other compensatory allowances ...	+ 4,637
Charges payable to Government department ...	+ 3,430

The only item calling for remarks is the payment under the head ' Charges payable to Governments and others ' which was paid to the Public Works Department on account of the difference between the standard rent and the actual rent paid in respect of the Public Works Department quarters in the Nilgiris division.

The outstanding revenue due to the department at the close of the year amounted to Rs. 3,38,783, of which Rs. 1,71,064 fell due within the year. The latter includes Rs. 1,15,565 due on sales by the Forest Utilization Officer.

Of the revenue realized, 68 per cent was from major produce, 18 per cent from minor produce, and 14 per cent from other sources. Of the expenditure on works, 73 per cent relates to exploitation, 11 per cent to improvement and upkeep of forests and 16 per cent to miscellaneous items.

CHAPTER VI.—RESEARCH AND EXPERIMENTS.

As in previous years the principal silvicultural research work was conducted by the Forest Research Officer, the research plots being located in all the divisions of the circle.

A few minor experiments were carried out by the District Forest Officers with the following results:—

Wynaad.—The lantana area of 40 acres in Begur range in which experimental burning is being done annually was demarcated with cairns and burnt. After the 1930 burning, the lantana is as flourishing as ever.

An experiment with Ceylon satinwood was proposed by the Chief Conservator and 4½ lb. of seeds were sown in prepared beds at Muthanga on 28th September 1928. At the end of March 1929, 1,340 seedlings were found surviving. At the beginning of June 1929, only 1,135 seedlings were found surviving. Six hundred seedlings were planted in half an acre of an old tuckle on well-drained; light sandy soil near Muthanga in pits 6 ft. by 6 ft. apart. The height growth of the seedlings was recorded in August 1929 by measuring 24 seedlings and it averaged 2·7 inches. Further results are being watched.

Nilambur.—In a half-acre plot in the 1902 teak plantation in Amarampalam range, 4½ lb. of seed of the Burmese bamboo, Cephalostachyum pergracile, were sown in prepared circles of 4 feet diameter at an espacement of 20 ft. by 20 ft. with the object of raising an underwood to the teak. The experiment is proving successful so far. Germination was good and a large number of seedlings in each patch survived, and were 1 foot to 2 feet high at the close of the year. The experiment cost Rs. 2-1-6. The seed was sent from Burma free of cost. A similar experiment in the Ramalur 1896 plantation, Nilambur range, was a failure.

Palghat.—The area in which Ceylon satinwood is being tried at Dhoni was taken over by the Forest Research Officer; the initial operation is reported to be a failure. The dibbling of 5 lb. of Burma Padauk (*Pterocarpus macrocarpus*) seeds in Dhoni coupe I was a failure. In the same area 305 stumps and 300 seedlings of Andaman Padauk (*Pterocarpus dalbergioides*) were planted and this operation also was not successful.

CHAPTER VII.—ADMINISTRATION.

Mr. F. R. Madan held charge of the Circle from 1st April 1929 to 21st February 1930 and Mr. A. Wimbush during rest of the year under report.

Tours.—The Inspector-General of Forests visited the Nilambur division in August 1929. The Chief Conservator visited portions of Palghat, Nilgiris, Nilambur and North Mangalore divisions.

The Conservator spent 166 days in camp, touring in all divisions and inspection notes were written on the forests of Wynaad and the Nilgiris divisions. For several months during one of the busiest parts of the year, Mr. Madan held charge of the Working Plans Circle in addition to his own, and this interfered to some extent with the touring.

The District Forest Officers of all divisions except Wynaad spent more than the prescribed minimum period in camp.

Inspection of District Forest and Range offices and sale depots.—The Conservator inspected all the District Forest offices and the District Forest Officers all the Range offices in the divisions. All the sale depots in the circle were inspected by the District Forest Officers concerned with the exception of those which continued to be in charge of the Forest Utilization Officer.

District Forest Officers' accounts inspection.—The Accountant-General's staff inspected, during the year, the accounts of North Mangalore, South Mangalore and the Nilgiris divisions. The accounts of Palghat division was inspected after the close of the year in May 1930. The accounts of Wynaad and Nilambur were audited by the staff of the Assistant Director of Commercial Audit.

Vernacular Training School.—The sixth session of the Vernacular Training School was held in the Palghat division from 1st May 1929 to 31st October 1929. Ranger M.R.Ry. K. R. Krishnan Nayar was the Senior Instructor and M.R.Ry. P. Sankunni Nayar was the Junior Instructor. The session started and closed with 28 students (3 foresters and 25 forest guards). All the students were awarded certificates, 10 were placed in the first class and 18 in the second class. The health of the students was generally good.

Health of establishment and sanitation.—The health of the establishment is reported to have been bad in all the divisions except North Mangalore and the Nilgiris. It was a particularly unhealthy year in Wynaad and the work suffered in consequence.

Sanitation.—The clearing of jungle growth around various buildings, to a distance of 100 yards, was done to improve the health conditions.

Casualties—North Mangalore.—One forest guard died of malaria.

Wynaad.—One forester was murdered. Three foresters and one guard died of malaria. One clerk of the District Forest office died of malaria and pneumonia.

The Nilgiris.—One forester died of pneumonia and one forest guard died of enteric fever.

CHAPTER VIII.—GENERAL.

(i) Formation and Management of Panchayats.

(To include the Forest Village System.)

North and South Mangalore are the only divisions in which there are panchayats.

In the North Mangalore division, the management of three reserves, viz., Tenkahola, Todar and Hosabetta, by panchayats was continued and these are reported to have worked satisfactorily. In the South Mangalore division the only panchayat, viz., Porkala panchayat, is reported not to have worked satisfactorily.

In accordance with Chief Conservator's No. 1035/C. 2/30, dated 30th January 1930, efforts were made to form more panchayats but the people for the most part were found to be unwilling to co-operate. A detailed report on the subject has been submitted to the Chief Conservator in this office C. No. M. 266/30, dated 2nd June 1930.

(ii) Measures for improving local supplies and facilities.

The special concessions granted to the ryots of South Kanara were continued. It is regrettable that in spite of warning abuses still take place. In North Mangalore division, the concession granted to ryots in Herur reserve was cancelled in Chief Conservator's No. 2917/C. 2/29-1, dated 27th May 1929.

At the instance of Mr. Karant, M.L.C., who accompanied the Chief Conservator on a tour in Kanara during the year under report, certain further concessions have been granted to the ryots of South Kanara (vide G.O. Ms. No. 1189, dated 10th June 1930, and Chief Conservator's No. 9145/C. 2/29-7, dated 23rd June 1930.)

In North and South Mangalore divisions the maximum rates which may be charged by the departmental coupe contractors for sale to the public of forest produce for domestic and agricultural purposes were published in the district gazette. As in previous years, logs and scantlings of different sizes were sold in retail at fixed rates at the sale depots in these two divisions.

Wynaad.—The local demand for forest produce is, in general, met from the extensive private forests and unreserved lands.

Nilambur.—All the major produce is extracted departmentally. There is sufficient supply of produce from the extensive private forests for the domestic needs of the people.

As regards improving the water-supply in grazing grounds no special steps were considered necessary owing to the copious rainfall in the circle, but there are a large number of instances in which ryots have been allowed to use for cultivation, etc., water from jungle streams on payment of a nominal fee.

(iii) Timber and Sandalwood Transit Rules.

Timber Transit Rules.—These are in force in all divisions except the Nilgiris and are reported to have worked satisfactorily. The sanction for the revised rules for Palghat division is pending with Government.

Sandalwood Transit Rules.—These are in force only in North Mangalore and South Mangalore divisions and are reported to have worked satisfactorily.

(iv) Jungle Tribes.

North Mangalore.—The 'Kudubies' who live chiefly in the interior parts of Coondapoor taluk provided labour for fire-protection and the manufacture of cutch as usual.

South Mangalore.—The Marattis and Malebudris still continue to practise shifting cultivation (kumri) in the unreserves of Kasaragod taluk by cutting and burning forest growth, but their activities in this respect are decreasing. The Labour department is continuing attempts to get them to take to more settled and improved methods of cultivation.

Wynaad.—The policy of assigning lands to Kurumbars free of assessment for cultivation with a view to settling them in the forests for procuring labour for departmental works was continued. They were also allowed free grazing. As in previous years, advances were offered to them for purchasing cattle for cultivation, but no one wanted the advance probably because of the invariable difficulty found in repaying the money.

Collection of cess on lands cultivated by forest lessees was required by the Revenue department. The hill tribes to whom lands were assigned free of assessment with a view to settle labour in the forests were either found unable to pay the assessment or likely to leave the forests if payment of cess were insisted upon. Consequently it has been proposed to pay the cess departmentally. (Chief Conservator's No. 6034/2-C. 1/29, dated 26th September 1929, and this office C. No. M. 999/29, dated 27th October 1929, 17th November 1929 and 8th December 1929).

The Nilgiris.—The Kurumbars in the Mudumalai range are employed as elephant-men and in tuckle cultivation. These and Chetti ryots living within the forests have been assigned lands free

or on nominal fees for cultivation subject to the condition that they should supply labour to the department. In Segur range, the Kasubas were as usual encouraged to settle in Anaikatti by grant of lands for cultivation. In Coonoor range, the Irulars and the Kurumbars were employed in the extraction of sandalwood and in clearing the district boundary and, with a view to settling them in the forests, lands were granted for cultivation either free of rent or for a nominal rent.

Palghat.—There are seventeen settlements mostly of Irulars and Kurumbars in Bolampatti and Mannarghat ranges and they continued to supply labour for forest works. These tribes are given lands for cultivation free of assessment. The question of paying cess by the department is under correspondence. In Bolampatti range, Ponam cultivation is done with the help of the Irulars of the settlements in the Bolampatti Valley.

(v) Mining and Quarrying.

Mining.—Nil.

Quarrying.—Orders of Government have been received after the close of the year to collect seigniorage on metal removed by various departments or their contractors—vide G.O. Press No. 780. Development, dated 5th April 1930, communicated in Chief Conservator's No. 2960/C. 2/29, dated 28th April 1930.

(vi) Livestock.

Elephants.—There were 92 elephants at the beginning of the year, 11 were captured and 6 were born in captivity, making a total of 109.

The casualties during the year were as follows:—

Five (4 new captures and 1 calf born in captivity) died of the following causes. Two died of colic due to enteritis, one died from the effects of having intestinal worms, one died of heart failure, and one died for want of mother's milk and gastro-enteritis.

Fourteen elephants were sold for Rs. 14,825. The number at the end of the year was 90.

Other animals.—At the beginnnig of the year there were 8 bullocks, 37 buffaloes and 4 asses. Of these, 4 bullocks and 5 buffaloes were sold, 3 buffaloes died and one ass was lost and not recovered. The balance at the end of the year was 32 buffaloes, 4 bulls and 5 asses, 2 foals having been born during the course of the year.

(vii) Veterinary Establishment.

As in the previous year, there were two Assistant Veterinary Inspectors, one for Nilambur and the other for the Livestock of Wynaad and the Nilgiris. The Inspector of Livestock supervised the work of these two assistants and in addition attended to the animals of South Kanara and Palghat.

(viii) Civil Suits.

Nilambur.—The decree obtained against the Uralan of Trikkalayur devaswam referred to in the previous report, still remains unexecuted and the matter is in the hands of the Collector.

The decree obtained against Naduvath Manakkal Subramanian Nambudripad referred to in the previous report, also has not been executed yet. The Nambudripad has preferred an appeal in the District Court against the decision of the District Munsif.

Mr. Rajeswaran, who was a sawing contractor in the Beypore depot in 1925–26, has filed a suit in the District Munsif's Court, Calicut, for recovery of Rs. 1,673 which he claims to be due to him, against the Government and the ranger who was in charge of the work. Government's contention is that no amount is due to him. The case has not been heard yet.

O. Valiya Ayamu, a contractor, who had taken advances for felling and supplying bamboos, failed to work off a sum of Rs. 120-12-10 either by work or in cash. A case was filed against him for recovery of the amount in the District Munsif's Court, Walluvanad, and a decree obtained. The Government did not succeed in arresting him and hence the matter was dropped.

A sum of Rs. 2,427 was due from Mr. A. P. Kunhiperachan, ex-lessee of Beypore coconut tope. He did not pay the amount though the Collector allowed him several extensions of time. A suit was filed in March 1930 in the District Munsif's Court, Calicut, to recover the amount. The suit was not heard before the end of the year.

ANNEXURE.

North Mangalore Division.

Description.—The forest division consists of the northern portion of the South Kanara district. The important timber forests are situated on the western slopes and the Terai of the Western Ghauts up to the Mysore Frontier, on the ghaut slopes 'Kumri' cultivation and the permit system of the past have been responsible for the disappearance of the most of the marketable timber. The heaviest stand of timber is now found along the ghauts between 1,500 to 2,000 feet above mean sea level. The forests on the ghaut slopes are both evergreen and deciduous and some of the trees, notably Poonspar (Calophyllum elatum)

and Kiralbhogi (*Hopea parviflora*) attain an immense size. As we approach the coast the quality of the forest deteriorates as the population and cultivation increase. The outlying hills near the coast are fuel forests. *Acacia sundra* is a special feature of some of the forests near the coast. It is confined to the laterite hilly plateau between the sea and the ghauts in Coondapoor taluk.

2. *Area of reserved forests and lands.*—The total area of the reserved forests at the close of the year was 359 square miles.

Reserved lands.—Nil.

3. *How the forest district is split up into subordinate administrative charges—*

Name of range.	Number of beats.
1. Coondapoor	18
2. Shankaranaraina	10
3. Udipi	14
4. Mangalore	8
Total ...	50

To help the four rangers in the execution of works and for protection of reserves there is a staff of 16 foresters and 68 guards and watchers

4. *Cost of administration—*

	RS.
District Forest Officer	10,305
Forest rangers	11,921
Subordinate staff	22,374
Clerical and menial staff	8,454
Miscellaneous including contingencies	2,809
Total ...	55,863

5. *Cost under other important heads—*

Timber operations	19,008
Firewood	...
Sandalwood	342
Feed and keep of livestock	4,265
Regeneration	3,330
Protection from fire	2,147
New Works—Buildings	3,629
Do. Wells	221
Other miscellaneous items	6,744+3
Total ...	39,686+3

6. *Income from main sources—*

From reserves.

							Rs.
Timber	...	...	...	...	...	...	44,452
Firewood	...	...	...	...	...	...	14,829
Grazing	...	...	...	...	...	...	5,502
Other minor produce			...	...	...	...	8,494
Miscellaneous revenue			...	...	...	...	11,298
							84,575
Deduct—Refunds			...	...	...	...	89
					Total	...	84,486

From unreserves.

Timber	...	...	...	...	...	...	6,645
Firewood	...	...	...	...	...	...	8,693
Sandalwood	...	...	...	...	...	...	2,374
Bamboos	...	...	...	...	...	...	19
Other minor produce			...	...	...	...	1,465
					Total	...	19,196

7. *Chief works done in the division—*

(1) Exploitation of timber in three centres amounting to 48,730 cubic feet to supply sleepers to the railways and timber to the coast market.

(2) Extraction and marking of 1·86 tons of sandalwood.

(3) Construction of the following buildings:—

(1) An outhouse to Range Officer's quarters at Shankaranaraina.

(2) An inspection shed at Kervashe.

(3) Installation of lightning conductors to District Forest Officer's quarters.

(4) Construction of a latrine for the servants at the District Forest Officer's quarters.

(5) Ceiling the roof of the Range Officer's quarters at Mudabidri.

(6) Flooring with tiles the Range Officer's quarters at Mudabidri.

(4) (i) Artificial regeneration of 34 acres with Acacia sundra in Coondapoor range.

(ii) Preparation of 65 acres for Hopea sowings and 4·40 acres for teak sowings.

(iii) Tending about 2,530 acres of artificially regenerated areas.

(5) Fire-protection operations in the area under special protection which amounts to 75,867·60 acres.

(6) Stock-mapping of nine timber reserves.

SOUTH MANGALORE DIVISION.

Description.—The division extends from near Kudremukh Hill (the highest point in the Western Ghauts of South Kanara) on the north, to Malabar on the south, the Arabian Sea on the west and up to Coorg and Mysore on the east. It covers the slopes of the Western Ghauts and their foot hills and is drained by the Netravati, Kumardhuri, Chandragiri and Nileshwar rivers. The highest peak, Kudremukh, is 6,200 feet above sea level.

The lower slopes of the ghauts and the foot-hills are clothed with dense evergreen and semi-evergreen forests containing magnificent trees but the majority of them are of unsaleable species, the principal useful species being Hopea, Poonspar, *Terminalia tomentosa*, *Terminalia paniculata*, Xylia and also some scattered white cedar and wild jack. Trees up to 150 feet in height and 15 feet in girth are not uncommon. Ebony, red cedar and Acrocarpus also occur to a very limited extent in some localities. Five varieties of canes are found in evergreen belts and of these the Naga (Cobra) cane is the most sought after. Bamboos and reeds occur in plenty. There are three cardamom estates on the steep upper slopes of the ghauts.

Next to the semi-evergreen is the deciduous zone which yields fairly large quantities of timber and fuel. The principal species of these forests are teak, Xylia, Terminalias, rosewood, Benteak (*Lagerstræmia*), *Pterocarpus* and *Albizzias*. A small quantity of sandalwood is found but practically the whole of it occurs in unreserves and in kumaki lands.

The rainfall is very copious and in Nalkur at the foot of the ghauts 195 inches have been recorded in a single year.

2. *Area of reserved forests and lands.*—Four hundred and forty-seven square miles.

3. *How the forest district is divided into subordinate administrative charges—*

	Name of range.	Number of beats.
1.	Puttur	14
2.	Kasaragod	14
3.	Uppinangadi	9
4.	Beltangadi	6
	Total ...	43

A staff of 14 foresters and 50 forest guards and 9 watchers is employed to help the four rangers in the execution of work and for protection of reserves.

4. *Cost of administration—*

	Rs.
District Forest Officer and Assistant Conservators.	20,252
Rangers	9,570
Subordinate and protective staff	19,542
Clerical and menial staff	9,057
Miscellaneous including contingencies	2,718
Total ...	61,139

5. *Cost under other important heads—*

Extraction of timber	54,313
Feed and keep of livestock	12,636
Sowing and planting	2,847
Protection from fire	1,724
Roads—New works	298
Buildings—New works	1,383
Other miscellaneous items	10,355
Total ...	83,556

6. *Income from main sources—*

From reserves.

Timber	30,616
Firewood	2,650
Bamboos	523
Grazing	9,785
Minor produce	5,283
Other miscellaneous items	9,015
	57,872
Deduct—Refunds	883
Total ...	56,999

From unreserves.

Sandalwood	9,941
Timber	9,822
Firewood	880
Other minor produce	3,246
Bamboos	43
Total ...	23,932

7. *Chief works done in the division.*—The principal activities of the division during the year were the extraction of 184,000 cubic feet of timber (for supply to Parappa Saw Mill, for railway sleepers and for the coast market) and the upkeep of Hopea regeneration areas (about 5,000 acres). About 7 tons of sandalwood were also extracted. A Working Plans Officer was engaged throughout the year in stock-mapping, enumerating and collecting other data for the preparation of a regular working plan for the whole division.

Wynaad Division.

Description.—The Wynaad Forest division covers the northern strip of Malabar from the Nilgiris district on the east to Tellicherry on the west and borders Coorg and Mysore on the north. On the Western Ghauts, their slopes (both east and west) and foot-hills, is good evergreen tropical jungle. On the coastal plain immediately west of the ghauts is semi-evergreen and deciduous forest of fair quality. On the Wynaad plateau, east of the ghauts, is good deciduous forest, gradually deteriorating towards the east to the borders of the Nilgiris, where the forest is rather stunted with large expanses of tall and dense elephant grass. The rainfall varies from 57·39 inches at Muthanga to 209·70 inches at Kannoth.

The elevation of the plateau is a little under 3,000 feet on the average. It is hilly with occasional hills rising to over 5,000 feet The forests of the ghauts and Wynaad plateau are very malarial.

2. *Area of reserved forests and lands.*—Two hundred and sixty-three square miles, most of which is on the plateau.

3. *How the forest district is divided into subordinate administrative charges*—

	Name of range.	Number of beats.
1.	Kannoth	5
2.	Begur	8
3.	Chedleth	...
4.	Sultan's Battery	...
		13

Although there are only four ranges, yet on account of extensive timber and regeneration works and to make allowance for frequent illness, an additional staff of rangers has to be employed according to necessity. These rangers are helped by a staff of 18 foresters and 56 forest guards and watchers. Chedleth and Sultan's Battery ranges are not divided into beats for protective purposes, as, due to their very remote situation, little protection is required. The staff of guards is, however, very fully employed in the execution and supervision of numerous important forest works such as timber extraction and regeneration and tending.

4. *Cost of administration—*

	Rs.
District Forest Officer and his assistant	26,340
Assistant Conservator under training and Deputy Conservator in charge of range	6,872
Officers in charge of ranges and their assistants and subordinate staff	51,128
Clerical and menial staff	12,560
Assistant Veterinary Inspector and staff ...	4,014
Miscellaneous including contingencies	3,779
Total ...	1,04,693

5. *Cost under other important heads—*

Extraction of timber	1,24,676
Feed and keep of livestock	34,172
Sowing and planting	15,699
Protection from fire	1,545
Purchase of livestock (elephant-capturing operations)	3,443
Buildings—New works	3,650
Roads—New works	350
Other miscellaneous items	30,576
Total ...	2,14,111

6. *Income from main sources—*

From reserves.

Timber	1,58,457
Bamboos	1,664
Grazing	4,330
Other minor forest produce	7,115
Other miscellaneous items	19,790
	1,91,356
Deduct—Refunds	238
Total ...	1,91,118

From unreserves.

Timber	3,712
Firewood	688
Other minor produce	229
Total ...	4,629

7. *Chief works done in the division—Exploitation.*—The chief works were: 359,430 cubic feet of timber felled and converted, and some transported to Mysore for sale, some handed over to the Forest Utilization Officer for sale at Nanjangud, some transported to the saw mill, some sold in the forests and some converted into sleepers for supply to the railways.

Regeneration.—Felling and burning of unsaleable material, preliminary to planting, was carried out over an area of 152 acres and planting was done on 128 acres. One thousand and eighty-four acres of plantations were tended.

Elephant-capturing operations.—These were conducted at a cost of Rs. 2,140.

Nilambur Division.

Description.—The Nilambur Forest division lies in the watershed of three rivers, the Chaliyarpuzha, the Karumpuzha and the Punnapuzha, and their tributaries. The three join near Nilambur, and the main river thus formed is known as the Chaliyar. It forms the principal means of export for the Nilambur timber, most of which is floated down to Beypore on the coast for sale. The bulk of the area of the division is in a compact block, situated on the outer slopes and foot-hills of the Kundah range of the Nilgiris, from 8,200 feet down to 120 feet elevation. The remainder consists of scattered blocks in the plains (mostly held by Government on lease) and it is these blocks which contain most of the famous Nilambur teak plantations. These plantations cover an area of about 10 square miles and are all situated close to the main rivers.

The natural forests are of the mixed semi-deciduous type up to an elevation of about 2,500 feet. Between 2,500 and 5,000 feet the forests are mostly evergreen. Above 5,000 feet tree growth is scattered and stunted, and most of the vegetation consists of grass only. Of the natural forests, the semi-deciduous type is the more valuable both from the point of view of superiority of species in the timber market and by reason of accessibility for extraction. The finest growth in this type of forest is in the foot-hills and up to about 2,000 feet on the slopes. Only the lower portions of the semi-deciduous forests are being worked at present, though a project for extending exploitation to higher elevations is under consideration.

2. *Area of reserved forests and lands.*—One hundred and twenty-six square miles.

3. *How the forest district is split up into subordinate administrative charges—*

Name of range.	Number of beats.
1. Nilambur	4
2. Amarampalam	1
	5

There is no regular subdivision into protective units, practically all the subordinates being employed in supervising the very extensive exploitation and regeneration works, hence the apparently small number of beats.

To help the two territorial rangers in extensive timber and regeneration operations there are always two or three assistant or special duty rangers. In addition, there are 18 foresters and 37 forest guards and watchers.

4. *Cost of administration—*

	Rs.
District Forest Officer and his assistant ...	18,528
Rangers and Assistant Veterinary Inspector ...	11,163
Subordinate protective staff	16,483
Clerical and menial staff	10,094
Miscellaneous including contingencies	1,667
Total ...	57,935

5. *Cost under other important heads—*

Timber operations	1,47,974
Bamboos	18,440
Feed and keep of livestock	33,393
Sowing and planting	23,386
Fire-protection	3,524
Buildings	18,712
Roads	* 27,332
Other miscellaneous items	2,696
Total ...	2,75,457

6. *Income from main sources—*

Timber (revenue realized both by District and through Forest Utilization Officer)	4,45,017
Bamboos	10,255
Minor forest produce	5,094
Sale of elephants and cattle	3,973
Total ...	4,64,339

* Includes Rs. 24,256 spent by the Engineering branch.

Chief works done.—The main works are large-scale timber and regeneration operations, which are summarised as follows:—

	C.FT.
Final clear-felling and extraction in mature teak plantations	90,800
Final clear-felling and extraction in natural forests	96,300
Subsidiary (selection) fellings and extraction in natural forests	107,500
Hand-sawing of sleepers—4,270 Broad Gauge and 1,207 Meter Gauge.	
Thinning in teak plantations 1,012 acres yielding	192,600
	ACS.
Regeneration with teak on old plantation clearings	74
Regeneration with teak on natural forest clearings	170
Regeneration with miscellaneous species ...	105
Tending of young plantations	326

Elephant-capturing (one female calf aged about 3 years was secured) and fire-protection were other important works.

THE NILGIRIS DIVISION.

Description.—The forest division extends over the whole of the Nilgiris district. In the south-west, stretching from the lofty crests overlooking Malabar to Ootacamund town lie the grass covered downs (the Kundahs). The centre south and south-east of the plateau, which once might have been evergreen forests, is now occupied mainly by Badaga cultivation and flourishing tea estates. The north and north-east of the district is mainly reserved forests which are of great climatic use in protecting the outer slopes, but scarcely of any economic value except for some sandalwood in the lower dry belts. The Mudumalai forests occupying the north-west corner of the district, and with an average elevation of about 3,000 feet contain valuable species such as rosewood, teak and the Terminalias, but the quality of the timber is much degraded from over-exploitation at the end of the last century and by constant fires. The Mudumalai reserve came into the possession of the Forest department by purchase from the Tirumalpad of Nilambur, only in the year 1919.

2. *Area of reserved forests and lands.*—Four hundred and ninety-one square miles.

3. *How the forest district is split up into subordinate administrative charges—*

Name of range.	Number of beats.
1. Ootacamund	17
2. Coonoor	22
3. Segur	7
4. Mudumalai	9
Total ...	55

The four rangers are assisted by a staff of 12 foresters and 67 guards.

4. *Cost of administration—*

	Rs.
District Forest Officer and his assistant	21,468
Rangers	11,248
Subordinate protective staff	24,960
Clerical and menial staff	11,654
Miscellaneous including contingencies	6,493
Total ...	75,823

5. *Cost under other important heads—*

Timber	4,902
Firewood	13,898
Sandalwood	2,100
Feed and keep of livestock	12,325
Elephant-capturing operations	1,051
Sowing and planting	3,852
Fire-protection	2,935
Buildings—New works	3,840
Other miscellaneous items	11,586
Nilgiri Game Association	5,396
Total ...	61,885

6. *Income from main sources—*

From Reserves.

Timber	46,303
Firewood and charcoal	46,783
Sandalwood	24,977
Bamboos	783
Grazing	5,979
Minor produce	2,459
Other sources including shooting licence fees ...	13,573
Total ...	1,40,857
Deduct—Refunds	531
Net total ...	1,40,326

From Unreserves.

Timber	20,233
Firewood	1,994
Bamboos	...
Minor produce	...
Total ...	22,227

7. *Chief works done in the division.*—Timber and elephant-capturing operations in the Mudumalai range, departmental fuel operations and planting in Ootacamund and Coonoor ranges and extraction of sandalwood in Segur and Coonoor ranges.

The District Forest Officer and the Range Officer had to spend a considerable time in investigating and submitting proposals to Government on numerous applications received from planters for assignment of reserves. In addition, owing to a change in the rules for diversion of water for irrigation, etc., numerous cases of water diversion in reserves had to be inspected, mapped and reported on.

Palghat Division.

Description.—The forest division covers the portion of the Western Ghauts to the south of North Coimbatore, the Nilgiris and Nilambur Forest division and north of Palghat Gap. Important deciduous forests of Bolampatti valley and Walayar and evergreen forests of Chenat Nair, Attapadi and Silent Valleys are the chief reserves included in this division. Various types of forests ranging from dry scrub jungle of Thadagam Valley with less than 20 inches of rainfall to the virgin evergreen forests of the Silent Valley receiving over 200 inches of rainfall are found in this division.

2. *Area of reserved forests and lands.*—Two hundred and sixty-two square miles.

3. *How the forest district is split up into subordinate administrative charges*—

Name of range.	Number of beats.
1. Palghat	10
2. Bolampatti	10
3. Mannarghat	10
Total ...	30

A staff of 14 foresters and 73 forest guards and watchers helps the rangers in protection of reserves and in the execution of works.

4. *Cost of administration*—

	Rs.
District Forest Officer	9,885
Extra Assistant Conservator	11,074
Rangers	8,799
Subordinate and protective staff	19,881
Clerical and menial staff	6,696
Vernacular Training School	10,113
Miscellaneous including contingencies	3,137
Total ...	69,585

5. *Cost under other important heads—*

	Rs.
Timber operations	69,034
Sowing and planting	5,874
Fire protection	2,475
Roads and bridges—New works	1,142
Buildings—New works	799
Other miscellaneous items	18,955
Total ...	99,279

6. *Income from main sources—*

From Reserves.

Timber	88,654
Firewood	60,423
Bamboos	13,097
Grazing	5,208
Minor produce	6,484
Miscellaneous items	8,295
	+ 39
Total ...	1,82,200
Deduct—Refunds.	11
Total ...	1,82,189

From Unreserves.

Timber	2,323
Firewood	1,925
Minor produce	4,450
Total ...	8,698

7. *Chief works done in the division—*

(1) Sleeper operations in the Silent Valley.

(2) Alignment of Anamulli Attapadi Block I road, 10 miles.

(3) Construction of path No. 8 in the Silent Valley, 2 miles 4 furlongs.

(4) Making an inspection path from Ambalapara to Kundipuzha, 7 miles 4 furlongs.

(5) Construction of Varali cart track, including land acquisition.

(6) Alignment of path from Alanallur to Silent Valley reserved forest.

(7) Improvement to Range Officer's quarters at Mannarghat.

(8) Purchase of furniture for the Neelikal rest-house.

(9) Regeneration in the Silent Valley.

(10) Teak planting in Dhoni coupe I.

(11) Teak planting in Varali coupe III completion.

(12) Teak planting in Elival coupe II.

(13) Improvement to Nadupathi road.

OOTACAMUND,
10*th September* 1930.

A. WIMBUSH,
Conservator of Forests, VI Circle.

... ...
... ...

ADMINISTRATION REPORT OF THE MADRAS FOREST COLLEGE, COIMBATORE, FOR THE PERIOD OF 1ST APRIL TO 31ST MARCH 1930.

CHAPTER I.—CONSTITUTION.

Board of Visitors.—Mr. Wimbush, I.F.S., acting Chief Conservator of Forests, was ex-officio President of the Board of Visitors from 1st to 10th April; throughout the rest of the year Mr. R. D. Richmond, Chief Conservator, held this office.

The following officers were on the Board during the year :—

Name of officer.	Period.
1. Mr. J. H. Longrigg 2. Mr. T. Clear 3. Mr. T. A. Whitehead 4. Mr. K. R. Venkataramana Ayyar	Throughout the year.
5. Mr. Madan	1st April 1929 to 21st February 1930.
6. Mr. Wimbush	22nd February to 31st March 1930.
7. Mr. Wimbush	1st April to 10th April 1929.
8. Mr. A. A. F. Minchin	11th April to 14th June 1929.
Mr. W. G. Dyson ...	9th September to 18th December 1929.
Mr. C. C. Wilson ...	19th December 1929 to 31st March 1930.

Staff.—Mr. C. R. F. Williams was the Principal of the College from the 1st of April to 5th January 1930. On this date he proceeded on leave and was succeeded by Mr. J. C. Wrench, the present Principal.

The following officers held the posts of Junior and Senior Instructors during the year under report :—

Name of officer.	Period.
Mr. J. C. Wrench ...	1st April 1929 to 5th January 1930.
Mr. E. B. Ramachandra Rao	6th January to 31st March 1930.
(He was attached to the College from 18th December 1929 to 5th January 1930.)	
Mr. P. W. F. Walpole ...	Throughout the year.
Mr. C. M. Belliappa ...	Throughout the year.
Mr. M. S. Raghavan ...	1st April to 12th July 1929.

From the 13th July 1929 the post of Second Junior Instructor was held in abeyance reducing the total tutorial staff to four officers.

The Medical Officer in charge of Lawley Road was Mr. K. Venkatarama Ayyar. The Curator of the Museum continued to be Mr. G. Viswanatha Ayyar, B.A. The present Manager, Mr. K. S. Venkata Rao of the Principal's office, succeeded to the office on the 1st March 1929 relieving Mr. K. S. Seshagiri Rao. The offices of Estate Overseer and Storekeeper were held by the same incumbents as last year as also were the posts of Senior and Junior Havildar.

CHAPTER II.—INSTRUCTION.

Teaching.—Lectures were delivered at headquarters to students in accordance with the College time-table.

Practical training at headquarters.—This was as usual carried out on Saturdays and also on a number of other days in the week. Exercises in silviculture, engineering and survey works were set and the application of theory to practice studied.

Drill and physical training.—Instruction in physical training and drill were, as usual given to the students of both the divisions by the College Havildars under the general supervision of an instructor.

Additional.—Mr. Dawson, the Forest Engineer, gave a series of lectures on Engineering in camp at Olavakkot in January and at headquarters in February and March 1930.

Mr. Kuppuswami, Assistant Utilization Officer, gave a short lecture to the seniors on sleeper passing at Olavakkot and the students witnessed the passing of 500 sleepers by him.

Mr. Pearce, Forest Engineer, gave instructions to the students at Arambyshola camp in trailer-taping.

Mr. Laurie, the Working Plans Officer, gave lectures at Mount Stuart on the principles and practice of topographical cruising and gave a demonstration.

The students visited the following mills and factories:—

(1) Match factory at Olavakkot.
(2) Saw mill at Topslip and at Olavakkot.
(3) Parry and Company's saw mills.
(4) The Standard Furniture Company at Kallai.
(5) Beypore depot and mill.
(6) Pollachi timber depot (where the management were kind enough to show the students round and to explain objects of interest).

2. *Results of examinations—1927-29 Division.*—Senior division of the year numbered 26; of these 7 were Madras students; all passed the final examination. One student from Central Provinces

obtained Honours certificate and the other 25 students obtained Higher Standard certificates. Percentage highest marks was 82·5, the lowest 61 per cent while the class average was 69·3 per cent. The seven Madras students were found among the first ten in the final examinations.

Messrs. H. P. Ward, J. A. Wilson, M. F. Bridge, J. K. Pearce, E. S. Dawson, J. M. Sweet, M. V. Laurie and E. V. Padmanabha Pillai conducted the final examinations in June 1929.

First Aid examination for this division was held in April 1929. The Assistant District Medical Officer, Mr. G. Sankaran Tampi, B.A., M.B.B.S., conducted the examination. Twenty-six students were examined; of these only 22 were awarded the Saint John's Ambulance proficiency certificates.

The examiners on the whole spoke favourably of the results achieved.

The following list shows the certificates awarded in the order of merit:—

Rank and name of student.	Circle, Province, etc., to which he belongs.
1. Jai Singh*	Central Provinces.
2. D. Nagaratnam	I Circle.
3. B. Venkata Rao	II Circle.
4. V. Rangacharlu	I Circle.
5. G. Pathak	Central Provinces.
6. S. Rangamannar Dass	V Circle.
7. Y. Subramaniam Nayudu ...	I Circle.
8. Gulab Singh	I Circle.
9. G. Kharkar	Central Provinces.
10. M. Kalappa	IV Circle.
11. H. Mukerjee	Bihar and Orissa.
12. B. Koppikar	Bombay.
13. N. Tiga	Gangpur State, O.F.S.
14. Muhammad Ala	Central Provinces.
15. P. Dube	Do.
16. M. Apte	Bombay.
17. T. Tiwari	Central Provinces.
18. Sitaram Singh	Do.
19. B. Trivedi	Do.
20. Syed Mumtaz Ali	Do.
21. Narain Reddi	Hyderabad.
22. A. Astewala	Bombay.
23. Barkat Ali	Central Provinces.
24. Sitaram Mudaliyar	Bombay.
25. Kesava Reddi	Hyderabad.
26. D. Premar	Central Provinces.

* Was also the first student in the Junior year.

Government and other prizes were awarded as follows:—

1. *Gold Medal.*—For the best second-year student—Jai Singh.

2. *Campbell-Walker Prize.*—For the best student in Forestry—Jai Singh.

3. *Brazier Prize.*—For the best practical all-round Ranger —D. Nagaratnam.

4. *The Lodge Prize.*—For the best second-year student in Forest Engineering—Jai Singh.

5. *Madras Conservators' Prize.*—For the best second-year student in Survey and Drawing—Jai Singh.

6. *Madras Conservators' Prize.*—For the best second-year student in Botany—B. Venkata Rao.

7. *Madras Conservators' Prize.*—For the best second-year student in Range Administration—B. Venkata Rao.

8. *Madras Chief Conservator's Prize.*—For the best Junior student—S. L. Dube.

9. *Indian Forester Prize.*—For an essay by the present students—S. L. Dube.

10. *Pentland Shield.*—For best all-round athlete—A. Astewala.

11. *Fischer Cup.*—For tennis—D. Nagaratnam.

12. *Moopil Nair Cup.*—For cross country race—Sitaram Singh.

13. *Swimming Medal.*—Mukerjee.

14. *Cowley-Brown Cup.*—For inter-divisional hockey—1927-29 Division.

15. Prize for the best essay in the Madras Forest College Magazine for 1927-28—Y. Subramaniam Nayudu.

Prize distribution.—The annual prize-giving was held at the College on the 1st July 1929 when the Hon'ble Diwan Bahadur M. Krishnan Nayar, Member of the Executive Council, Madras, gave away the prizes and certificates to the students. A garden party given by the Chief Conservator of Forests in the College grounds followed this event.

1928-30 *Division.*—The strength of this division was 15; of these only one student was from Madras, the others were from Central Provinces, Bombay, Hyderabad, Court of Wards and Jawhar State.

The Final Examination in Physical Science for this division was held in June 1929. The standard of papers set was slightly higher than last year.

The Chief Conservator's prize for the best student of this division was awarded to S. L. Dube, a student from Central Provinces.

1929-31 *Division.*—This division, the present seniors, numbers 16 students; all of whom are from outside the Madras Presidency. On the results of the first periodical examination held in November, two students found to be below the average were warned that they would not be permitted to complete the course if they could not improve in the next examination. They however did better in the second periodical and have been allowed to continue. The class average at the end of the year was 64·5 per cent while the top student obtained a percentage of 92·5 and the lowest 54. The first student of the class was from Bonai State, O.F.S.

The number of students admitted into the College during the last two years is 15 and 16 respectively. The falling off in number, is largely due to the fact that students from Madras are not coming, there being only one Madras student in the 1928-30 and none in the 1929-31 Division. The two private students of the Madras Presidency for whose admission at the reduced rate of tuition fees of Rs. 500 for the whole course sanction was obtained, finally failed to join.

Periodical examinations.—The periodical examinations held during the year show that both the divisions are making satisfactory progress. The third and fourth half-yearly examinations in Silviculture and the fourth half-yearly in Survey were held by the Conservator of Forests, Working Plans Circle, Conservator of Forests, VI Circle, and the Forest Engineer this year instead of by the Instructors themselves as decided by the Board of Visitors at the meeting held in June 1929.

CHAPTER III.—ADMINISTRATION, TOURING, HEALTH AND CONDUCT.

Administration.

The Board of Visitors' meeting was held on Saturday, the 29th June 1929. The following were subjects before the meeting:—

Third and fourth half-yearly examinations—Silviculture.—Instead of the previous practice which was that the third half-yearly should be taken by the Instructor at Nedungayam and the fourth half-yearly by a Conservator or Principal at Ootacamund, it was resolved that in future the third half-yearly be conducted by the Conservator, Working Plans Circle, at Nedungayam, and the fourth half-yearly by the Conservator, VI Circle, at Sappal

and Ootacamund with 40 and 35 marks respectively. It was further decided that something on the same line should be devised for Engineering.

Change of tour programme.—The Senior Division camp at Sappal usually held for 45 days was reduced to 14 days, the site of the camp being changed to Olavakkot. The period of camp thus reduced to be distributed as under:—

	DAYS.
June—Walayar camp for Junior division	10
June—Senior division	7
November—Mount Stuart camp, Junior division ...	7
November—Nedungayam, Senior division	7
Total ...	31

College area, Walayar.—It was decided that the silvicultural treatment of this area should follow the prescriptions of the Walayar Working Plan for the Pole Working Circle.

Temporary reduction of the post of one Instructor.—The Principal's (Mr. C. R. F. Williams') suggestion to keep the post of one Instructor vacant as an experimental measure and to distribute the work between the other Instructors and himself was approved.

Cost of education.—As shown by the figures given in statement I appended to this report the actual net cost to Government for running of the College this year was Rs. 48,521 against Rs. 64,471 of the previous year. The difference is mostly due to the fact that the College was exempted from payment of rent to the Public Works Department on the non-residential buildings as a non-commercial concern.

Touring.—The camping during the year was carried out in accordance with the sanctioned programme. As decided at the Board of Visitors' meeting in June 1929 the Senior division camped at Olavakkot instead of at Sappal for only 14 days against 45, while Mount Stuart and Nedungayam camps were extended by one week.

The following brief details outline the more important subjects of study at each camp and the practical work performed:—

Arambyshola camp—April-May 1929.—The camp lends itself to the further study (begun in Bandyshola camp) of exotics and the natural shola forest, but from the point of view of forest management as demanded by the syllabus of study for the second year.

Practical work in Engineering, Survey, Silviculture and Forest Management were carried out. In Botany some time was devoted to the study of exotics and shola species, and excursion to the Botanical Gardens. Engineering work comprised a survey of a road at Lovedale, construction of a crib work bridge and under Silviculture and Forest Management and measurement of sample plots in Cairn Hill, Aramby and Muthinad reserves and other works. Final practical examinations in Silviculture, Working Plans, and Survey were held and conducted by outside examiners.

Bandyshola camp, Coonoor—April-May 1929—1928-30 *Division.*—Botanical and silvicultural study of the various exotics met with in the vicinity. Measurement of certain sample plots. Practical instruction in charcoal-making. Verification of reserve boundaries, survey and map-making by the trailer-tape, study of certain buildings, bridges and preparation of road estimates. Practical examination in Silviculture, Utilization, Botany and Engineering and Survey was held.

Sadivayal camp, Bolampatti—September-October 1929—1928-30 *Division.*—Various simple survey and engineering works were done. In Botany a study was made of the morphological characters of the more important trees and shrubs. Study was also made of the silviculture characters of certain trees and an opportunity taken to view the artificial regeneration to be seen at this camp. Range administration was also taught and visits were paid to the Range office.

Topslip camp—November-December 1929—1929-31 *Division.*—This is perhaps the most interesting camp visited by the Junior division. The topics for study are numerous and cover most of the College syllabus. Considerable practical work was done on road, culvert, construction and repair, trailer-taping. Much time was given to the identification of tree species (deciduous and evergreen) and shrubs also to practical instruction in teak regeneration areas, tending and thinnings and calculation of figures of cost. Excursions were made to Ulandi and other parts where a number of enumerations were done. Considerable time was given to range administration to the method of maintenance of all registers connected with exploitation, and the cash book. Elephants at work and rest were studied and the Assistant Veterinary Inspector gave two lectures and demonstrations. Practical examinations in Engineering, Botany, Utilization, Silviculture and Range Administration were held at the end of the camp.

Kargudi camp—January-February 1930—1929-31 *Division.*—This camp lends itself to the study of a dry deciduous forest, to sandal regeneration, and to some degree, exploitation; and at this period of the year to range administration chiefly connected with anti-fire operations. Practical instruction in Engineering and Survey took place. An inspection path was aligned

and an estimate prepared. The camp site was surveyed with compass and plane table. A further area was trailer-taped. The botanical characters of certain local species were studied, among which was sandal. Practical application of the silvicultural prescription for the Improvement Working Circle of the working plan was studied and figures of cost obtained. Much practical work was done in connexion with the fire estimate and figures of cost obtained. On one occasion the students helped to put out a fire and were engaged from about 6 o'clock in the evening until about midnight. Elephants and elephant-catching operations as usual received further study.

Walayar camp—August 1929—1928–30 *Division.*—The practical work consisted chiefly of the demarcation, survey, and stock-mapping of the coupe for exploitation next year and tending work in the existing coupes in the College area.

An estimate for the repair of a road was prepared by each student.

Nedungayam camp—November–December 1929—1928–30 *Division.*—Inspection of timber depot and saw mill at Beypore, Standard Furniture Company's mill and the New Malabar Timber and Saw Mill Company's mills for study of the working and mechanism.

General silvicultural excursions to study teak in different stages and natural regenerations of mahogany. Under Engineering, construction of roads, taking level for bridges across river, trailer-taping was done.

Third half-yearly examinations in Botany, Silviculture and Engineering were held.

Olavakkot camp—January 1930—1929–31 *Division.*—Excursions were made to experimental areas under different treatment. Tending was carried out; also field sketching and contouring by the eye. The students got instruction on sleeper passing. An examination forming part of the fourth half-yearly was held in practical silviculture by the Conservator, VI Circle.

Tour journals.—A record of all work done in the various camps is maintained by each student in the form of a tour journal. The District Forest Officers are informed of any work carried out by the students which might be of interest or use to the division.

It is possible that in the production of actual costing figures for certain types of work the College can best help District Forest Officers.

Inspection.—The senior students were inspected at Nedungayam by the Conservator, Working Plans Circle, and at Dhoni and Arambyshola by the Conservator of Forests, VI Circle. The Inspector-General of Forests and the Chief Conservator visited the

students at work in Walayar in August 1929. The Chief Conservator and the Principal inspected the students at work at Bandyshola and at Arambyshola.

Health.—The students while at the College are subjected to semi-military discipline. There is no doubt that the system of regular exercise consisting of compulsory games and daily physical training or drill turns out a very healthy and alert student.

The health of the students was generally good in all camps. On account of the large number of malaria cases in previous year the camp at Dhoni (Sappal) was changed to Olavakkot during the current year. All members in camp were regularly given quinine as a prophylactic.

From Topslip camp one student had to be sent to Pollachi Hospital on account of fever and he was retained in the hospital as an in-patient for fourteen days.

Conduct and discipline.—The standard of discipline and conduct at the College has been satisfactory throughout the year.

CHAPTER IV.—THE GASS FOREST MUSEUM AND COLLEGE LIBRARY.

1. *Museum.*—The Museum continues to afford useful instruction to students and to be an object of interest to the general public.

The number of visitors increased for the year under report from 31,850 to 32,857.

2. A number of exhibits were sent to the Madras Park Fair Exhibition (held at Madras during Christmas, 1929) chief of which was a collection of the more important timber species of the Presidency together with specimens of their minor forest produce.

3. From collections made by students a number of additions were made to the Herbarium, and a number despatched to Oxford and Cambridge University.

A number of queries regarding flower, leaf and timber specimens were received and replied to.

4. *Library.*—Seventy-three new volumes of general and technical interest were added to the Library during the year. A number of old volumes were rebound.

CHAPTER V.—SUPERVISION, WATER-SUPPLY, ROADS, BUILDINGS, ETC.

Supervision.—The popularity of the new Goschen Park which is adjacent to the northern boundary of the College estate makes the proper protection of the boundary on this side as well as the estate, difficult. The ordinary paths are not always followed and new ones and breaks in the boundary occur weekly. It appears that a barbed-wire fence is required here. This matter is being raised separately.

Water-supply.—The water-supply was satisfactory, though a relay of the pipe-line was necessitated and an estimate of Rs. 1,715 sanctioned.

The reason for the need for the relay was due to the fact that the pipe passes through municipal ground for a certain distance and this ground previously vacant is now being built on. The line for this portion was dismantled and relaid along the road.

Roads.—All the existing roads have been kept in repair. The Cowley-Brown road which is most used and which was laid several years ago requires to be thoroughly repaired. This and the need for more extensive repairs to the other College roads is being raised separately.

Buildings.—The buildings which were maintained by the Public Works Department in previous years have been transferred to the charge of the College since April 1929, the date from which the College (as a non-commercial concern) was exempted from payment of rent. All the necessary repairs have been carried out. An additional godown for storage of tents was constructed during the year by converting the unused saw-pit into a godown.

Athletic ground.—A new wooden pavilion was built at the athletic ground during the year at a cost of Rs. 1,500 from contributions received from the Central Provinces Government, donations from Forest Officers, free supply of timber being made by the Madras Government. Our thanks are due to these Governments and the officers who gave donations as also to Mr. E. S. Dawson, Forest Engineer, who undertook the construction on behalf of the College.

Gymnasium.—The gymnasium shed has been repaired and refitted to some degree and it is intended that in future more time be devoted to gymnastics.

CHAPTER VI.—GENERAL.

Stock-taking.—The stock of the College was checked in detail in July 1929 by the staff. Articles found unserviceable were written off after proper sanction.

Games including swimming.—The standard maintained has been satisfactory. As usual at headquarters two days a week have been compulsory game days, though on most other days games were played. Games continued in camps but there they necessarily took a different form. Swimming was practised at Kargudi by the junior students in the Moyar river and during Nedungayam camp the seniors were tested in swimming.

COIMBATORE,
13th September 1930.

J. C. WRENCH,
Principal, Madras Forest College, Coimbatore.

STATEMENT I.—Statement showing Revenue and Expenditure at the Madras Forest College, Coimbatore, during 1929–30.

Receipts.

Budget heads.	Amount.
VIII. Forests—(*e*) Miscellaneous—	RS. A. P.
(2) Forest College	46,294 5 9
(3) Rents	1,111 1 0
* *Deduct* ...	47,405 6 9
* *Deduct* ...	559 3 0
Net revenue ...	46,846 3 9

Expenditure.

8. (*c*) Establishment—(iv) Forest College.

Pay of officers—	
Non-voted	21,612 15 0
Voted	22,104 15 0
Pay of establishment—	
Permanent	12,928 6 0
Temporary	1,721 2 0
Allowances—	
Non-voted—	
Travelling allowances	2,887 9 0
Cost of passage	5,448 9 0
Voted—	
Travelling allowances	4,360 6 0
Honoraria—Voted	855 0 0
Contingencies—Voted—	
Pay of menials	2,184 0 0
Rents	2,193 0 0
Telephone charges	175 0 0
Miscellaneous	4,519 9 7
Grants-in-aid—Recurring—Voted—Miscellaneous ...	400 0 0
Charges payable to Government Departments and others	3,950 10 0

* *Deduct*—

	RS. A. P.
Refunds	556 4 0
March final figures ...	2 15 0
	559 3 0

Budget heads.	Amount. RS. A. P.
Supplies and services—General—	
Apparatus and materials	4,287 14 7
Books and periodicals	191 9 6
Miscellaneous	2,838 9 8
S. B. Conservancy and Works—	
III. Maintenance—Repairs and renewals—Communication and buildings—Forest College Works	4,572 4 8
Non-voted—Rates and taxes	107 10 10
Total expenditure ...	97,339 2 10
Deduct—	
I. *Revenue realized* ... ... RS. A. P. 46,846 3 9	
II. *Expenditure on Museum*—	
(*a*) Pay of Curator ... RS. A. P. 1,598 4 0	
(*b*) Pay of Museum watchers, other expenses at the Museum in connexion with exhibits ... 373 12 0	
1,972 0 0	48,818 3 9
Net cost on account of the College ...	48,520 15 1

Note.—The Accountant-General who was asked to include the sum of Rs. 368 (the centage due to the Public Works Department) in March final has not done this yet. If this is included the total net cost would be raised by that amount.

STATEMENT II.—Abstract showing the livestock, stores, tools, in the Madras Forest College for the year ending 31st March 1930.

(Form No. 44.)

Serial number.	Description of stock.	On hand at the commencement of the year.		On hand at the end of the year.		Difference in value in favour of the year.		Difference in value against the year.	
		Number.	Amount.	Number.	Amount.				
			RS. A. P.		RS. A. P.		RS. A. P.		RS. A. P.
1	Survey and other instruments	2,019	8,192 10 10	2,013	8,271 0 8	(a)	78 5 10		..
2	Tools	876	2,088 1 5	834	2,047 14 3		..	(b)	40 3 2
3	Furniture	1,697	22,816 15 0	1,784	22,903 3 11	(c)	86 4 11		..
4	Uniforms	45	285 0 0	45	283 0 0		..	(d)	2 0 0
5	Scientific apparatus	1,357	861 10 8	1,357	861 10 8		..		..
6	Gymnasium articles	9	251 0 0	9	251 0 0		..		..
7	Machinery and oil engine	2	1,849 12 0	2	1,849 12 0		..		..
8	Photographic articles	14	164 10 0	13	173 10 0		9 0 0		..
9	Miscellaneous articles	1,288	6,899 15 0	1,214	6,937 9 0		37 10 0		..
10	Tents	67	7,181 0 0	68	7,111 0 0		..	(e)	70 0 0
11	Buildings	..	33,199 0 0	..	5,81,246 0 0		* 5,48,047 0 0		..
	Total		83,789 10 11		6,31,935 12 6		5,48,258 4 9		112 3 2

Note —The previous return did not include the cost of roads and buildings in the estate, but were included on the authority of Chief Conservator's Ref. No. 2189-C-2, dated 29th March 1930.

REMARKS.—(a) Increase due to purchase of stores.
(b) Due to wear and tear of certain oil-engine parts.
(c) Due to revaluation and purchase of certain articles.
(d) Rupees 242-2-0 worth of uniforms and accoutrements received and issued during the year.
(e) Value of tents condemned.

RS.	
* 4,96,017	Cost of all buildings including the cost of land in the College estate.
650	Constructions of sheds for the College camp at Walayar.
2,566	Cost of the well for the College water-supply.
4,110 4,716	Cost of engine-shed, Madras Forest College.
219	Cost of incenerator.
3,769	Cost of minor roads.
36,000	Cost of roads constructed by the Public Works Department.
5,48,047	

STATEMENT III.—Madras Forest College, Coimbatore division, 1929—31.

Serial number and name of student.	Circle or State to which attached.
1. S. Ahmed	Central Provinces.
2. S. M. Khan	Do.
3. R. R. Singh	Do.
4. Abdul Hamid	Do.
5. M. Ishaque	Do.
6. M. S. A. Khan	Do.
7. M. A. Pathan	Bombay.
8. P. M. Asabe	Do.
9. M. Haq	Hyderabad.
10. M. Ghouseuddin	Do.
11. Harban Singh	Indore.
12. B. Lawalekar	Do.
13. Amarjit Singh	Rewa.
14. C. M. Pande	Do.
15. H. S. Gupta	Bonai.
16. G. S. Deb	Bamra.

COIMBATORE,
13*th September* 1930.

J. C. WRENCH,
Principal, Madras Forest College, Coimbatore.

ADMINISTRATION REPORT OF THE FOREST UTILIZATION DIVISION FOR THE YEAR 1929-30.

At the commencement of the year the division held control of the following timber depots :—

Beypore (Nilambur commercial concern).

Pollachi (Mount Stuart commercial concern).

Olavakkot sawn timber depot only (Chenat Nair commercial concern).

Nanjangod (Wynaad timber depot).

Kasaragod (South Mangalore division).

The sleeper depot at Pollachi (Valparai project).

Throughout the year the organization and control of all these depots were carried out by the Forest Utilization Officer aided by the Assistant Forest Utilization Officer both with headquarters in Madras.

The details of the staff in the division at the end of the year are shown under the heading of Administration.

Operations.—According to the audited figures the turnover of the Forest Utilization division for 1929-30 is Rs. 12,88,328 showing a decrease of Rs. 27,856, at the same time the overheads of the division was reduced from 3·8 per cent in 1928-29 to 3·62 per cent in 1929-30.

The decrease in the turnover of the division is partly due to the closure of Olavakkot, Topslip and Parappa mills during the year and partly to the slump in the timber market of the West Coast.

Details for the total turnover in 1929-30 are given in Statement I.

Beypore depot.—In the case of logs and poles the receipts from Nilambur were 314,375 cubic feet and the disposals were 244,194 cubic feet. The demand for teak was very poor in the last six months of the year.

The mill was kept supplied with logs throughout the year and the disposals from stock were practically equal to the receipts from the mill. Under orders of the Chief Conservator of Forests during the year, no teak was issued to the mill except to complete special orders already undertaken and the mill was supplied mostly with pillamarudu logs. It was ordered that the market for this timber be investigated and the Forest Utilization Officer is attending to this. The Assistant Forest Utilization Officer compiled statistics about

the demand for this kind of timber in the Eastern markets and attempts are being made through the Agent to augment the sale of this species which has already gained a certain amount of popularity.

The prices realized for scantlings were on a par with the current market rates. Owing to the closure of the mill, for teak, all special orders in teak were stopped and a big order from the railways for teak keys was only partially completed, the railways being asked to cancel the unfulfilled portion of the order as the mill was finally closed on 30th April 1930.

The timber dealings during the year are shown in statement II.

Pollachi Depot.—Auction sales of logs were held monthly during the year; 85,784 cubic feet were sold against an in-take of 86,208 cubic feet. The unsold balance at the end of the year is small.

Sales were fairly attended and the price of teak was normal; prices for junglewood species on the other hand showed slight improvement, with the excepion of Terminalia tomentosa, and small logs of Lagerstrœmia lanceolata, Grewia tiliæfolia and Pterocarpus marsupium.

Difficulty was experienced in selling the old stock of spokes and felloes, experiments are being made in finding a market, especially for vengai, in Guntur where it was reported that markets exist.

The transactions in sawn timber were average and as the mill at Topslip was closed on 31st December 1929, there were no receipts thereafter. The receipts were 18,970 cubic feet, and the disposals were 14,422 cubic feet. Details of receipts and disposals are shown in statement III.

Kasaragod.—As last year log sales were not very encouraging: 6,402 cubic feet of logs and poles were received and 6,607 cubic feet were sold and removed. The sale of sawn scantlings also was not satisfactory, the year opened with a stock of 29,330 cubic feet and closed with 50,655 cubic feet in stock, the sales being 29,046 cubic feet. The large closing balance is chiefly due to the fact that nearly the whole output of the mill arrived between January and March. Owing to the poor quality of the timber and the paucity of good local markets which usually derive their supply from private forests at cheap rates, the sales were mainly effected through the Agent to Eastern markets. The deteriorated old stock was sold off to the new agent at a reduced rate to avoid congestion in the depot. The Agent still finds difficulty in disposing of the new stock also owing to the poor quality of the timber. The mill at Parappa was closed by the end of the year.

Details of receipts and disposals are given in statement IV.

Nanjangod.—The receipts of logs were 35,335 cubic feet, 50,784 cubic feet being sold and removed during the year; the closing balance was 3,543 cubic feet, nearly the whole of which was sold towards the end of the year. The prices realized were good except in one or two cases when there appeared to be a combine among merchants. Auctions were well attended and there was a good demand for teak. 20,924 cubic feet of scantlings were received and 12,450 cubic feet were sold. As in the case of Kasaragod all the scantlings of the year arrived in the last few months; hence the large closing balance.

Statement V shows the dealings during the year.

Olavakkot.—As the mill was closed from the 5th November 1929, there were no large receipts. The old stock as stood on 1st July 1929 was sold in full to Mr. V. Rajagopala Acharya who has completely removed the whole quantity. During the year 13,381 cubic feet were received from the mill and 48,622 cubic feet were sold. The stock at the end of the year was 1,344 cubic feet.

Statement VI shows the timber dealings during the year.

Other operations.—Statement VII shows the details of the number of sleepers supplied to the railways and the amounts realized. The railways agreed to accept from the Forest department 47,184 broad gauge and 14,493 metre gauge. Of these 41,234 broad gauge and 13,733 metre gauge sleepers were passed by 31st March 1930, the remainder being passed between 31st March 1930 and 17th May 1930. Besides the above, 149 broad gauge and 1,180 metre gauge half rounds and 2,361 broad gauge and 928 metre gauge second-class sleepers were passed. All the above sleepers have been inspected and passed by the Forest Utilization Officer and the Assistant Forest Utilization Officer.

Inspection of depots and auctions.—The Forest Utilization Officer and the Assistant Forest Utilization Officer toured continually throughout the year passing sleepers, holding monthly auctions, inspecting the depots, 239 days being spent on tour.

All the depots were inspected at regular intervals throughout the year and stock-taking at the end of the year was made with the assistance of the Assistant Conservators, Messrs. V. S. Krishnaswami and Griffith.

Overseas trade.—A small outstanding with Messrs. W. W. Howard Bros. & Co., London, is still to be accounted for by the High Commissioner for India, London, who is auditing their accounts.

The export of logs for direct-sale and consignment sale through Messrs. Peirce, Leslie & Co., Calicut, increased during the year though appreciable profits were not realized. At the same time it should be understood that some of the direct orders were sold at low rates being trial orders ; the consignments also are only being sent to establish a name for our timbers; ultimately it is hoped to sell all our timber direct and avoid consignment sales altogether; however the time for this has not come yet. The position of the consignment sales are shown in statement VIII.

The exports on account of direct orders are shown in statement IX.

The majority of logs exported were Laurel and this timber is now becoming established in the European and American markets. Other junglewood species are being sent for experimenting in veneers.

Local trade.—The demand and prices of timber were showing signs of improvement, chiefly due to the improved grading of the logs and scantlings by the Utilization division. Owing to the high grade of timber supplied by the Forest department, the South Indian Railway and Messrs. the Buckingham and Carnatic Mills Company, Ltd., took large supplies from the Government forests.

In sawn material, the railways placed special orders to the extent of nearly Rs. 11,000 and these important customers had to be turned down owing to the closure of all our mills. The Public Works Department also placed many indents with the division. The ordinary market was supplied chiefly through the old Agent who handled 99,668 cubic feet to the value of Rs. 1,95,869 and the new Agent who from 15th November 1929 up to the end of the year handled 14,414 cubic feet to the value of Rs. 31,235. Many standing orders from the Railways, Public Works Department, etc., had to be turned down owing to the closure of our mills.

Financial.—The turnover of the division during the year was Rs. 12,88,328 and the figures for the division from its inception in 1925–26 to date are as follows :—

	LAKHS. RS.
1925-26	$3\frac{1}{2}$
1926–27	$9\frac{1}{4}$
1927–28	$12\frac{1}{4}$
1928–29	$13\frac{1}{4}$

Forest economy.—The Forest Utilization Officer took over from the Chief Forest Engineer the additional duties of the Forest Economist with effect from 1st September 1929, the separate post of a Forest Economist having been abolished on 11th October 1928.

Library.—The following books were ordered for the library before 31st March 1930 :—

(1) Engineering for Forest Rangers in Tropical countries with special reference to Burma by A. H. Lloyd.
(2) Seasoning, handling and care of lumber—United States Department of Commerce.
(3) Report of the Forest Products Research Board (with the report of the Director of Forest Products Research) for the period ended 30th September 1928.
(4) Wood Work Tools and How to use them by Evans Bros.
(5) The Wood Worker (1928 volume) by Evans Bros.
(6) Cabinet Construction by Evans Bros.
(7) Accounting in the Lumber Industry by H. W. Eckardt.
(8) Wood Construction by Dudley F. Holtman.
(9) Factors which influence the decay of untreated wood in service by Geo. M. Hunt, United States Department of Agriculture, Forest Products Laboratory.
(10) Lumber: Its manufacture and Distribution—by Ralph C. Bryant.
(11) End Coating for Logs and Lumber by Teesdale.
(12) Manufacture and Seasoning of Oak.
(13) Problems in the Seasoning of Southern Hardwoods.
(14) Rules for Piling Lumber for Air seasoning in order to avoid deterioration.
(15) Glues for use with wood—Technical Note 207.
(16) Looking Forward to better Forest Utilization by C.P. Winslow, Forest Products Laboratory.
(17) The Gluing of Wood.
(18) Booklet in Boxes by National Committee on Wood Utilization.

The last four books have not come yet.

As it was ordered later that one central library should be formed in the Chief Conservator's office, all the books are being transferred there.

The following periodicals were received and circulated to all the officers of the branch :—

(1) Timberman.
(2) Indian Forester.
(3) Hardwood Record.

(4) Capital.
(5) Timber Trades Journal.
(6) Australian Forestry Journal.
(7) Mermaid.
(8) Forestry: The Journal of the Society of Foresters of Great Britain.
(9) Empire Forestry Journal.

Ledger filing.—Important articles from journals, etc., are being ledger-filed regularly.

Liaoson between the Forest Economist, Dehra Dun, and the Forest Utilization Officer.—Closest co-operation and contact were maintained between this office and the Forest Research Institute, Dehra Dun, in the matter of supplies of timber for various tests carried out there and of specimens sent for identification from different sources. The programme of research work is by projects and timber for various projects as detailed below are being supplied from the various divisions:—

Project.	Species.	Division.	Quantity.	Date of supply.	Cost.
					Rs. A. P.
I	Chloroxylon swietenia.	Vizagapatam ..	5 logs (54 c. ft.).	8th June 1929.	43 6 0
	Canarium strictum ..	North Mangalore.	,, (95 ,,).	..	..
	Machilus macrantha ..	Do.	,, (112 ,,)	June 1930.	..
	Lophopetalam species ..	Do.	,, (76 ,,).	..	..
	Myristica attenuata ..	Do.	,, (70 ,,).	..	..
	Elecocarpus species ..	Do.	5 logs	Not yet supplied.	
	Mimusops elengi ..	Supply being arranged with South Coimbatore.	..	..	..
	Stereospermum xylocarpum.				
	Sterculia alata				
	Gironniera reticulata ..	Nilambur ..	5 logs	Not yet supplied.	
II	Canarium strictum ..	North Mangalore.	5 logs (164 c. ft).	..	..
	Machilus macrantha ..	Do.	,, (178 ,,).	..	..
	Calophyllum inophyllum.	Being arranged with South Coimbatore.			
	Gironniera reticulata ..	Nilambur ..	5 logs	Not yet supplied.	
VII	Grewia tiliæfolia ..	Exploitation division.	14 logs (356 c.ft.).	28th March 1930.	356 0 0
	Terminalia paniculata..	Nilambur ..	16 logs (399 c.ft.).	4th June 1930.	198 6 7
	Machilus macrantha ..	North Mangalore.	17 logs (502 c.ft.).	June 1930.	Not yet billed.

Publications—Volume tables.—The volume tables prepared by Mr. J. A. Master, I.F.S., were received from the Superintendent, Government Press, at the end of the year and these were distributed to all the divisions.

Market report.—The market report written by Mr. J. A. Master is in the press and it is expected shortly to be released. The Assistant Forest Utilization Officer visited some of the important markets during the year collecting details in connexion with the pillamarudu market.

Park Fair Exhibition.—As usual, the Forest Utilization division participated in the Annual Park Fair Exhibition held during the Christmas and New Year holidars by the South Indian Athletic Association, Madras, and useful articles from the Wood Workshop, Olavakkot, were exhibited along with other timbers of the Presidency. The exhibition was well attended and several orders were canvassed for the products of the Wood Workshops, Olavakkot, which unfortunately has since been closed. Part of the exhibits remaining unsold are now with the Friend-in-Need Society who is arranging to sell them to the best advantage. The Forest Utilization Officer and the Assistant Forest Utilization Officer with the assistance of the Utilization Ranger, Calicut, and the Curator, Madras Forest College, conducted the exhibition.

The forest stall was awarded a gold medal.

Ivory sales.—The sale of ivory was conducted by the Forest Utilization Officer at Madras. As no tenders were received on the prescribed date, the stock was sold in auction and the results are shown in statement X. There seems to be no advantage in having the sales conducted in Madras and it is better to revert to the old system of conducting sales at Coimbatore.

Administration.

Forest Utilization Officer ...	Mr. H. P. Ward from 1st April to end of the year.
Assistant Forest Utilization Officer.	Mr. V. S. Kuppuswami from 1st April to end of the year.
Deputy Forest Utilization Officer.	Mr. Muhammad Abdul Hafiz from 1st April 1929 to end of the year.

Field staff.

One Special Duty Ranger, Calicut.

Three Depot Rangers, Beypore, Pollachi and Olavakkot.

Foresters—Beypore 2, Pollachi 2, Kasaragod 1, Nanjangod 1.

Depot clerks (permanent and temporary)—Pollachi 1 (permanent), Peypore 1 (temporary), Olavakkot 2 (temporary stock-keeper).

Watchers 9.—Beypore 4 (including tope watcher), Pollachi 2, Kasaragod 2, Nanjangod 1.

Peons—Calicut 1, Beypore 1, Pollachi 1, Olavakkot 1.

Headquarters staff.

One tour clerk, 1 accountant, 10 clerks and 7 peons.

STATEMENT I.—Statement of turnover of the Forest Utilization Division for 1929–30.

Depot.	Logs and poles.	scant-lings.	Sleepers.	Bamboos, karias, spokes and felloes.	Rejections.	Total.
	RS.	RS.	RS.	RS.	RS.	RS.
Beypore	2,41,816	1,09,807	..	10,492	5,082	3,70,197
Pollachi	1,52,369	24,291	..	1,615	687	1,78,962
Olavakkot	..	67,321	..	..	..	67,321
Nanjangod	1,48,386	29,769	..	..	..	1,78,155
Kasaragod	4,476	46,952	41,124	..	1,403	93,955
Valparai	..	1,768	1,21,170	..	1,845	1,24,783
						10,13,373

	RS.
Add Beypore Tope revenue	4,418
Sleeper bills forwarded an account of—	
District Forest Officer, Nilambur	33,688
Do. Wynaad	21,243
Do. North Mangalore	13,105
Do. South Mangalore	1,839
Do. Palghat (sleepers, kolmarams and chattams).	90,382
Forest Engineer, Olavakkot (sleepers and scantlings)	1,07,883
Ivory sales and miscellaneous receipts	2,397
Total ..	12,88,328

Statement II.—Beypore Depot—Receipts and disposals for 1929-30.

Species.	Opening stock.	Receipts.	Total.	Sales.	Issues to saw mill.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Plantation teak	37,849	136,506	174,355	88,230	53,310	..	32,815	1,68,776	1 14 7
Pillamarudu	..	101,835	101,835	30,171	31,707	..	39,957	30,890	1 0 5
Karimarudu	..	4,217	4,217	4,217	..	..	..	4,006	0 15 2
Venteak	4,677	4,487	9,164	9,164	..	..	..	7,372	0 12 10
Irul	..	27,516	27,516	1,150	337	..	26,029	1,237	1 1 3
Rosewood	..	174	174	117	..	..	57	175	1 8 0
Mahogony	..	1,069	1,069	1,049	..	20	..	1,110	1 0 10
Natural teak	..	8,801	8,801	4,487	..	..	4,314	8,704	1 15 0
Poles and measurables	1,321	29,770	31,091	20,160	..	75	10,856	22,418	1 1 10
Total ..	43,847	314,375	358,222	158,745	85,354	95	114,028	2,44,688	1 8 8
Sawn timber—									
Teak	12,034	29,582	41,616	(a) 35,230	..	..	6,386	101,018	2 13 11
Pillamarudu	..	18,287	18,287	1,378	..	13	16,896	2,346	1 11 3
Irul	..	135	135	..	..	71	64	..	..
Total ..	12,034	48,004	60,038	36,608	..	84	23,346	103,364	2 13 2
								RS.	
						Add sale amount of porotes and saw dust		5,082	
						,, bamboos and karias		10,492	
							Total ..	3,63,626	

(a) 30,750 c.ft. sound scantlings at Rs. 3-2-11 .. Rs. 97,781.
4,480 rejection scantlings at Re. 0-11-7 .. .. Rs. 3,237.

Statement III (*a*).—Pollachi Depot—Receipts and disposals for 1929-30.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate per cubic foot.
Logs—	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Teak	8,644	30,375	39,019	32,474	*119	6,426	76,237	2 5 7
Karimarudu	1,370	17,527	18,897	10,844	*3,114 173 (*a*) 74	4,692	12,569	1 2 7
Pillamarudu	3,386	9,538	12,924	11,431	(*a*) 8	1,485	14,260	1 4 0
Rosewood	805	5,923	6,728	5,202	..	1,526	10,666	2 0 10
Venteak	4,288	7,047	11,335	9,591	(*a*) 95	1,649	10,434	1 1 5
Vengai	1,858	10,411	12,269	8,872	(*b*) 63	3,334	10,547	1 3 0
Miscellaneous	3,738	5,387	9,125	7,370	(*b*) 35	1,720	7,024	0 15 3
	24,089	86,208	110,297	85,784	3,681	20,832	1,41,737	1 10 5
Teak poles	1,939	140	2,079	2,056	23	..	251	0 1 11 each.
Total spokes	3,984	5,584	9,568	1,788		7,780	1,535	20 9 8
,, felloes	1,991	2,795	4,786	893	..	3,893		per set.
Vengai spokes	707	96	803	96	..	707	80	20 0 0
,, felloes	357	45	402	48	..	354		per set.
Sawn Timber—								
Teak	1,942	6,702	8,644	5,774	..	2,870	14,788	2 9 0
Other species	3,410	12,268	15,678	8,457	191	7,030	9,503	1 2 0
Total ..	5,352	18,970	24,322	14,231	191	9,900	24,291	1 11 4
						Total ..	1,67,894	
					Sale of rejections		687	
							1,68,581	
					Deduct adjustments relating to 1928-29 ..		2,073	
						Net total ..	1,66,508	

* Consigned to Messrs. Peirce Leslie & Co. for Oversea sales.

(*a*) Departmental use. Under karimarudu 173 cubic feet wrongly brought to account as excess found in the previous year is now deducted.

(*b*) Despatched to Messrs. Wood Mosaic & Co. as samples.

STATEMENT III (*b*).—Valparai Sleeper Depot—Pollachi—Receipts and disposals for 1929–30.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.
	NO.	NO.	NO.	NO.	..	NO.	RS.	RS. A. P.
Mesua broad gauge sleepers	3,440	15,714	19,154	2,738	I Class.	..	23,273	8 8 0
				11,069	I ,,	..	11,319	8 4 0
				72	II ,,	3,843	409	5 11 0
				417	II ,,	..	2,294	5 8 0
				1,015	Rejections.	..	1,453	1 6 11
				15,311				
Mesua metre gauge sleepers	229	1,192	1,421	1,247	I Class.	..	3,741	3 0 0
				67	II ,,	..	134	2 0 0
				79	Rejections.	28	56	0 11 4
				1,393				
Air seasoned sleepers	..	272	272	272	...	..	289	1 1 0
	..						1,22,968	
Kolmarams	170 : 425	..	170 : 425	170 : 425	..	..	1,304	1 7 11
Chattams	358 : 448	..	358 : 448	358 : 448	..	..		per cubic foot.
White cedar boards	300	..	300	125	5	170	372	2 15 7
Red cedar boards and pieces	..	225	225	169	56	..	92	0 8 9
Red cedar sleepers		988 : 1921	988 : 1921	..	* 988 : 1921	..	..	..
Total ..	1,173	2,146	3,319	1,167	1,982	170	1,768	..
							1,24,736	
				Add sale amount of cut ends of sleepers			47	
							1,24,783	

* S. M. E's. sale.

STATEMENT IV.—Kasaragod Depot—Receipts and disposals for 1929-30.

Particulars.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.
Mill sawn timber—	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Teak	8,098	14,053	22,151	10,315	138	11,698	28,030	2 11 6
Other species	20,973	30,995	51,968	17,375	305	34,288	16,716	1 15 7
Hand sawn timber—								
Kolemarams, chattams and other species	259	5,768	6,027	1,356	2	4,669	2,274	1 10 10
Total ..	29,330	50,816	80,146	29,046	445	50,655	47,020	..
Sleepers—	NO.	NO.	NO.	NO.		NO.	RS.	RS. A. P. per sleeper.
Mill sawn Xylia B. G	..	205	205	55 I class	..	38	440	8 0 0
				112 II ,,	..	..	595	5 5 0
				197 I ,,	..	112	591	3 0 0
Do. do. M. G.	19	514	533	215 II ,,	..	..	430	2 0 0
				9 rejections.	..	..	11	1 3 7
				102 I class	..	154	816	8 0 0
Hand sawn Xylia B. G.	175	205	380	26 II ,,	..	..	138	5 5 0
				98 rejections.	..	..	127	1 4 9
				35 I class	..	89	105	3 0 0
Do. do. M. G.	146	54	200	4 II ,,	..	..	8	2 0 0
				72 rejections.	..	..	29	0 6 5
				3,955 I class	..	319	32,706	308 at 8-8-0 and 3,647 at 8-4-0.
Do. Hopea B. G.	454	4,598	5,052	267 II ,,	..	..	1,472	21 at 5-11-0 and 246 at 5-8-0.
				511 rejections.	..	..	1,039	2 0 6
				1,205 I class	..	108	3,615	3 0 0
Do. do. M. G.	185	1,386	1,571	104 II ,,	..	..	208	2 0 0
				154 rejections.	..	..	165	1 1 2
Total ..	..	..	..	..	..	..	42,495	..

Kasaragod Depot—Receipts and disposals for 1929-30—*cont.*

Particulars.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.
Logs—	C.FT.	C.FT.	C.FT.	C.FT.		C.FT.	RS.	RS. A. P.
Karimarudu	21	504	525	525	..	..	578	1 1 7
Pillamarudu	4,956	1,084	6,040	4,956	..	1,084	2,827	0 9 2
Rosewood	139	75	214	..	..	214	..	..
Other species	106	158	264	73	..	191	73	1 0 0
Teak poles	..	4,485	4,485	909	..	3,576	800	0 14 1
Poon squares	48	96	144	144	..	..	198	1 6 0
Total ..	5,270	6,402	11,672	6,607	..	5,065	4,476	..
Add sale amount of Miscellaneous rejections ..							32	
Grand Total ..							94,023	
Deduct adjustments relating to 1928-29 accounts ..							68	
							93,955	

STATEMENT V.—Nanjangod Depot—Receipts and disposals, 1929–30.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.
	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Logs—								
Teak	16,334	29,632	45,966	42,423	..	3,543	1,21,812	2 13 11
Vengai ..	1,295	3,687	4,982	4,982	..	..	8,433	1 11 1
Rosewood ..	1,363	1,209	2,572	2,572	..	..	4,559	1 12 4
Mathi	..	501	501	501	..	..	422	0 13 6
Manjakadambai.	..	92	92	92	..	..	97	1 0 10
Venteak ..	..	214	214	214	..	..	240	1 2 0
Total ..	18,992	35,335	54,327	50,784	..	3,543	1,35,563	2 10 11
Sawn timber—								
Teak	7,418	12,818	20,236	7,685	6	12,545	23,303	3 0 6
Other species ..	6,698	8,106	14,804	4,765	4	10,035	6,466	1 5 9 *
Total ..	14,116	20,924	35,040	12,450	10	22,580	29,769	2 6 3
					Total ..	..	1,65,332	..
Deduct sundry adjustments regarding 1928–29 sales						..	441	..
					Net Total ..	..	1,64,891	..

* Includes B grade sold in auction.

STATEMENT VI.—Olavakkot Depot—Receipts and disposal of sawn timber for 1929–30.

Species.	Opening stock.	Receipts.	Total.	Sales.	Other disposals.	Closing stock.	Sale amount.	Average rate.
	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	C.FT.	RS.	RS. A. P.
Nilambur teak ..	1,504	11	1,515	534	(a) 981	..	1,837	3 7 0
Eleval	123	18	141	141	..	..	450	3 3 1
Other species ..	37,158	13,352	50,510	47,947	886 * 333	1,344	66,871	1 6 4
Total. ..	38,785	13,381	52,166	48,622	2,200	1,344	69,158	..
Add adjustments relating to 1928–29 (Nilambur teak)					.. .. ..		49	..
					Net Total ..		69,207	..

(a) Includes 974 cubic feet consigned to Messrs. Peirce Leslie & Co., for oversea sales.

* Billed by Forest Engineer, Olavakkot.

STATEMENT VII.—Statement showing sleepers actually despatched in 1929-30 (against 1930-31 contract).

Division.	Broad gauge.					Metre gauge.					Grand total.
	I Class.	Amount.	II Class.	Amount.	Total.	I Class.	Amount.	II Class.	Amount.	Total.	
		RS. A. P.		RS. A. P.	RS. A. P.		RS. A. P.		RS. A. P.	RS. A. P.	RS. A. P.
Olavakkot ,, ..	9,022	73,021 12 0 half round.	588 52	3,431 13 0	76,453 9 0	7,413	22,334 0 0 Half round.	485 983	2,941 8 0	25,275 8 0	1,01,729 1 0
Valparai	12,384	1,02,168 0 0	563	3,096 8 0	1,05,264 8 0	809	2,427 0 0	45	90 0 0	2,517 0 0	1,07,781 8 0
Kasaragod	3,786	31,199 12 0 half round.	287 95	2,075 8 0	33,275 4 0	1,332	3,996 0 0 Half round.	108 197	610 0 0	4,606 0 0	37,881 4 0
Wynaad	1,840	15,180 0 0	115	632 8 0	15,812 8 0	663	1,989 0 0	48	96 0 0	2,085 0 0	17,897 8 0
Nilambur	3,623	28,984 0 0	273	1,450 5 0	30,434 5 0	1,038	3,114 0 0	70	140 0 0	3,254 0 0	33,688 5 0
South Mangalore ..	118	944 0 0	6	31 14 0	975 14 0	283	849 0 0	7	14 0 0	863 0 0	1,838 14 0
North Mangalore ..	1,298	10,693 0 0 Half round.	47 2	268 15 0	10,961 15 0	695	2,085 0 0	29	58 0 0	2,143 0 0	13,104 15 0
Palghat	9,163	75,594 12 0	482	2,651 0 0	78,245 12 0	1,500	4,500 0 0	136	272 0 0	4,772 0 0	83,017 12 0
Total ..	41,234	3,37,785 4 0 half round.	2,361 149	13,638 7 0	3,51,423 11 0	13,733	41,294 0 0 half round.	928 1,180	4,221 8 0	45,515 8 0	3,96,939 3 0

NOTE.—To complete the 1930-31 contract 5,950 Broad gauge and 760 Metre gauge sleepers were passed after 1st April 1930.

STATEMENT VIII.—Messrs. Peirce, Leslie & Co. Consignments—1929-30.

Division.	Species.	Stock on 1st April 1929.	Despatches in 1929-30.	Sales in 1929-30.	Gross amount.	Expenses incurred by Forest Utilization Officer division.	Net amount.	Average rate on gross amount.	Stock on 31st March 1930.
		C. FT.	C. FT.	C. FT.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	C.FT.
1. Nilambur division.	Teak (scantlings).	973·743	..	973·743	4,490 10 8	454 2 8	4,036 8 0	4 9 9	
	Laurel		171·000	171·000	128 6 3	108 8 3	19 14 0	0 12 0	
2. Nilgiris	Rosewood ..	..	674·000	..	..	..	..	..	674·000
3. South Coimbatore ..	Haldu	118·000	..	..	..	..	..	..	118·000
4. Wynaad division	Rosewood ..	304·000	282·000	347·000	1,183 3 3	331 14 7	851 4 8	3 6 10	239·000
	Laurel	2,065·000	2,942·000	3,528·000	4,275 1 4	834 5 4	3,440 12 0	1 3 5	1,479·000
		3,460·743	4,069·000	5,019·743	10,077 5 6	1,728 14 10	8,348 6 8	..	2,510·000

STATEMENT IX.—Overseas sales in 1929-30 booked directly by Forest Utilization Officer.

Division.	Species.	Stock on 1st April 1929.	Despatches in 1929-30.	Sales in 1929-30.	Gross amount.	Expenses incurred by For. st Utilization Officer division.	Net amount.	Average rate on gross amount.	Stock on 31st March 1930.
		C.FT.	C.FT.	C.FT.	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.	C.FT.
1. South Coimbatore ..	Teak.	42	119	161	584 8 0	190 12 0	393 12 0	3 10 1	
	Laurel	811	3,114	3,925	11,869 5 10	4,316 1 10	7,553 4 0	3 0 5	
2. Wynaad division ..	Laurel	1,481	2,009	1,989	6,753 15 7	1,039 10 7	5,714 5 0	3 6 4	1,501
	Rosewood ..	167	71	198	1,052 0 0	82 14 6	969 1 6	5 5 0	40
Total ..		2,501	5,313	6,273	20,259 13 5	5,629 6 11	14,630 6 6	..	1,541

STATEMENT X.—Statement showing the result of Ivory sale sold in auction tabulated according to divisions.

Division.	Quantity. Number of pieces.	Quantity. Number of tusks.	Weight lb.	Rate per lb. RS. A. P.	Amount. RS. A.	Total. RS. A.
North Mangalore	4	..	1/13	1 8 0	0 13	0 13
North Coimbatore	..	3	41 11/39	6 6 0	263 3	263 3
Nilgiris	15	3	10 1/3	3 2 0	32 5	32 5
Wynaad	..	2	38 16/39	6 6 0	244 14	
Do.	..	1	10 7/39	4 8 0	45 13	
Do.	..	3	11 7/13	2 13 0	33 11	
Do.	5	..	7 4/13	4 6 0	34 8	
Do.	15	..	3 1/13	1 5 0	4 1	362 15
Kollegal	..	2	28 15/31	8 0 0	227 5	227 5
South Coimbatore	..	3	28 7/7	5 15 0	177 12	
Do.	..	† 2	1 1/13	0 7 0	0 10	
Do.	..	1	24 7/13	8 3 0	200 15	379 5
Nilambur	7	..	1 127/127	1 12 0	1 3	
Do.	23	..	10 24/52	3 8 0	37 6	38 9
Coorg	* 2	..	9	0 1 6	0 14	
Do.	..	3	80 2/3	6 14 0	556 5	
Do.	..	2	7 26/39	3 0 0	22 15	
Do.	..	2	5 37/39	3 0 0	17 14	
Do.	2	..	2 3/39	0 7 0	1 5	
Do.	8	..	1 23/39	0 7 0	0 1	600 0
Palghat	..	2	36 1/13	8 5 0	306 15	306 15
Total ..	81	29	363 27/78			2,211 6

* Broken and useless pieces. † Small.

MADRAS,
6th August 1930.

H. P. WARD,
Forest Utilization Officer.

MINOR FOREST PRODUCTS SECTION.

The chief items of work carried out in the Minor Forest Produce section during the year 1929–30 were—

Helping the trade.—The right to remove minor forest produce from the reserves was leased out as usual to contractors, except in parts of Kurnool and Nellore where they were collected departmentally chiefly with a view to provide work for the local tribes, the Chenchus and the Yanadis. So one of the chief items of work in this section continued to be the bringing of the contractor and the purchaser into direct touch.

Many enquiries were received from individuals and firms, local and foreign, who were furnished with the information and samples asked for. Holders of minor forest produce stocks, District Forest Officers as well as contractors, who were in touch with this office, were kept informed of the current rates for their produces, trend of the market, and also put in touch with the likely buyers.

A ' Price list ' showing the current rates for minor forest products in the chief markets in this Presidency was compiled every month and communicated to the Conservators and the District Forest Officers.

The market for minor forest products continued to be fairly normal and steady during the year. The very rapid increase in imports of wattle bark has however seriously affected the revenue from the local tan-barks.

Collection of information.—Literature available on minor forest products is very meagre. It had to be supplemented from other sources which entailed a perusal of several trade journals, bulletins and books.

The ledger files were added to during the year and useful extracts from and references to trade journals, reports, bulletins and books were inserted therein.

Statistics showing the annual outturn of the various minor produces were obtained from the districts and posted in the stock book. The annual export and import figures relating to minor forest produces were also obtained and recorded. They not only show the trend and requirements of the foreign markets, but also the extent of competition by the foreign products in the local markets.

Tamarind—Increase of revenue—Lower Godavari.—In the Lower Godavari division the seigniorage on tamarind had continued for years at 1 anna per maund (25 lb.) The question of raising it to the present market level was investigated during 1928 and the

Collector advised to increase it to 2 annas per maund. The seigniorage was, however, first increased to 1½ annas from 1st August 1928, and subsequently raised to 2 annas from 21st February 1929, as recommended.

At 1 anna per maund the actual revenue during 1927–28 was Rs. 16,099-7-6, but after raising the seigniorage to 2 annas the total revenue during 1929–30 was Rs. 35,204-3-3—a net increase of Rs. 19,105.

Hopea parviflora bark—a new tan-stuff.—Hopea bark used to be a waste product from the trees felled annually in the South Kanara forest. Its examination as a tan-stuff however showed that "next to wattle, myrabolams and Divi Divi, it is the richest of the South Indian tanning materials." The laboratory experiments yielded a solid extract containing about 66 per cent tannin which is well over the maximum desirable in such extracts.

Since the properties of this new tan-stuff have become known to the Madras tanners a demand for it has been created. Two well-known English firms applied for a monopoly of this bark. As the outturn is, at present, limited to the annual fellings in North and South Mangalore divisions, it has been possible to contract for the supply of 140 tons only. Its price was increased from Rs. 60 per ton in 1928 to Rs. 80 per ton f.o.r. Kasaragod.

Anogeissus latifolia leaves and sumac.—Samples of Anogeissus latifolia tender leaves and sumac from Madura district were supplied to the Imperial Institute, London, with a view to investigating its suitability for use as a tanning material in the United Kingdom.

"*Results of examination.*

	PER CENT. Leaves.	PER CENT. Sumac.
Tannin	32·9	38·5
Moisture	12·8	14·0
Insoluble matter	44·3	33·7
Extractive matter (non-tannin) ...	10·0	13·8
Ash	4·4	4·0"

The results of the examination show that all the samples contain high percentages of tannin, the sumac (young leaves and twigs) being particularly satisfactory in this respect. In each case the amount of soluble non-tanning extractive matter is advantageously low."

The leaves of *Anogeissus latifolia* compare very favourably as regards their tannin content with true sumac (Rhus coriaria), as Sicilian sumac of good average quality contains 26 to 28 per cent of tannin.

The leather produced by the three samples was generally similar, of light colour and good quality. Samples of the leather prepared at the Imperial Institute were submitted to firms in the light leather trade, who were favourably impressed and expressed a wish to try the material on a large scale."

The Advisory Committee on Tanning Materials has expressed the following opinion:—

"The leaves are very rich in tannin and generally of satisfactory composition. They promise to be a very useful tanning material and would no doubt take a prominent place among tanstuffs for the light leather industry, but it would be unwise to consider the material as a rival to true sumac."

Information is asked about the possibility of preparing these products on a commercial scale in this Presidency, and the quantities likely to be made available for export and the approximate cost of production, etc. To determine the present cost of collection and preparation of these products an experiment would be carried out next season in a suitable locality by collecting a fairly large quantity of red and green leaves to work out average rates for commercial purposes.

Lac operations.—(*i*) *Lac cultivation on Shorea talura—North Salem division.*—Shorea talura occurs in patches which are widely distributed on the North Salem plateau. These patches were roughly stock-mapped, enumerated and divided into two series of nine coupes each to be worked in a systematic manner.

Before actual lac cultivation is started the lac host has to be pruned to produce young succulent shoots. Shorea talura responds best to pruning done during two short seasons in a year, and it takes 18 to 24 months to produce shoots suitable for lac infection. During the two pruning seasons in 1929 all the trees in the first three coupes of each series, 10,650 trees in all, were pruned. Lac cultivation on an extended scale will start in 1931 when these pruned trees would become fit for inoculation.

For want of sufficient trees with suitable shoots the actual cultivation had to be restricted during 1929–30 and was carried on a few trees chiefly to conserve and develop the brood and to train up the local staff in lac work.

Two crops were raised since April 1929. The pre-monsoon crop which was started in April matured in July 1929. It took about sixteen weeks to develop. One hundred and twenty-two and a half pounds of brood lac was used which due to its poor quality and parasetic attacks yielded only 430 lb. The monsoon crop commenced in August and was harvested in December 1929. The brood took 17 to 19 weeks to swarm out. One hundred and

sixty pounds of selected and cleaned brood lac collected after swarming had commenced, was used for inoculation. It developed successfully, free from parasetic attacks, and gave a good harvest of 1,025 lb.

More brood lac than could be utilized in the district was harvested. In the absence, at present, of a local market for it a temporary arrangement was come to with the Mysore Darbar and the Indian Institute of Science to lend them the surplus stock which will be returned to us whenever needed. Since April 1929, 509 lb. of brood lac was lent to them, 535 lb. used locally, 40 lb. supplied to Central Salem, 15 lb. sent to the Lac Research Institute, Namkum (Bihar and Orissa) and the rest scrapped.

It can now be said that lac cultivation has become established in North Salem. It has already commenced supplying good Shorea brood lac, a rare commodity, for starting lac operations in other districts where Shorea talura occurs. During the year lac work was entrusted to the district staff. The Research Ranger carried it out successfully under the control of the District Forest Officer.

Central Salem division.—On the Chitteris in Central Salem division over 10,000 Shorea talura trees exist. It was decided to try lac experiments at Chitteri where 50 trees already pruned were available to make a start. Brood lac was taken from North Salem and put on the pruned trees found suitable for inoculation. The present crop is reported to be coming up well.

Districts where Shorea occurs.—The Shorea talura areas in Madura, Kollegal and North Coimbatore districts were inspected. Conditions appear to be suitable for trying lac cultivation in Madura and North Coimbatore, but in Kollegal it seems doubtful.

Lac experiments could not be started in more districts as it is not possible for the Deputy Forest Utilization Officer to personally supervise the operations in more centres than one in a season.

(ii) *Lac cultivation on Schleichera trijuga—Madura district.*—Schleichera trijuga which produces the best lac was found growing almost gregarious near Vannathiparai, Madura district. As the climatic conditions also seemed to be suitable it was decided to start lac cultivation on an experimental scale. One maund of Kusum (*Schleichera trijuga*) brood lac was obtained from Muri (Bihar and Orissa) and put on shoots on the 20th of January 1930. Swarming and settlement was satisfactory. This crop is expected to mature in July 1930.

February is regarded as the most suitable season for pruning Schleichera trijuga trees in Bihar and Central Provinces. So some trees were pruned during February.

Palghat district.—Two reserves near Mannarghat contain a large number of Schleichera trijuga trees growing gregariously. The Deputy Forest Utilization Officer inspected these reserves and considers it possible to grow the summer crop in this area, and the monsoon crop in Bolampatti Valley.

(iii) *Lac cultivation on Zizyphus jujuba.*—Some zizyphus jujuba trees in Naganur reserve, North Salem district, were pruned in December 1928 and repruned in April 1929. Butea brood lac was obtained from Bihar and put on the new shoots in October 1929. The crop is now on the trees and is reported to be highly parasetised.

At Hassanur in North Coimbatore division Zizyphus jujuba and Butea frondosa trees were pruned during February 1930. Butea trees have responded well by sending out numerous vigorous shoots, but the response of Zizyphus is rather poor. Brood lac has been ordered for from Bihar and will be put on these shoots in July 1930.

(iv) *Lac cultivation on other hosts.*—Some experiments have been carried out and are in progress mostly in North Salem, in which different broods are being tried on new hosts. The Shorea brood developed fairly on Rynchosia rufescens, Desmodium gyrans and Dichrostachys cinerea. It seems to thrive best on Atylosia albicans, half a pound put on ten creepers yielded 5 pounds. A sample of this lac was examined in the Lac Research Institute, Namkum (Bihar and Orissa) and was pronounced to be of good quality. It may prove economical to produce this lac, the lopping and preparation essential to working on tree hosts being unnecessary in the case of creepers.

Shorea, Schleichera and Flemingia broods are being tried on Zizyphus jujuba and Acacia sundra.

Lac market.—Lac market is subject to violent fluctuations. The price of grain lac normally ranges from Rs. 70 to 90 per maund (80 lb.) Not infrequently it slides down to Rs. 50 and also shoots up to Rs. 110. For the lac in stock there was an offer of Rs. 70 per maund.

Comparative value of lac.—An idea of the value of lac when compared with the other well-known forest products can be obtained from the following figures :—

(1) Lac at Rs. 80 per maund works out to Rs. 2,240 per ton.

(2) Sandalwood—Average price realized in sales during December 1929 at Tiruppattur, Rs. 1,400 per ton.

(3) Rosewood at Rs. 5 per cubic foot works out to Rs. 250 per ton.

(4) Teakwood at Rs. 3 per cubic foot works out to Rs. 150 per ton.

While teak, sandalwood and rosewood trees take 70 to 100 years to grow to exploitable size lac crops can be raised annually or every alternate year on the same host trees which are at present of no economic value except as fuel in accessible localities.

Cassia fistula.—The whole output of Cassia fistula bark which is largely used in tanning hides was consumed in South India itself.

To determine the most economic rotation for exploiting this bark for tanning purposes it was necessary to ascertain the age at which bark from coppice shoots contains the highest percentage of tanning and gives the best tanning results. To get barks 1 to 5 years old, coppice shoots of 1 to 5 years of age were selected in the clear-felled coupes V to IX of Devancheruvu block I in Godavari district.

Advantage was taken of this opportunity to obtain some exact data about the coppicing powers of Cassia fistula, girth at base of coppice shoots of different ages, yield of bark from them, effect of dryage, etc.

The dry bark was analysed by the Leather Research Chemist, at the Leather Trades Institute, Madras. It will be noticed from the results given below that there is a sudden fall in tannin content at 5 years. To know definitely whether this sudden drop in tannin content is natural to the species or peculiar to the particular sample analysed, more bark 5 and 6 years old, from the same locality is being sent to the Research Chemist.

Results of analyses of Cassia fistula bark.

	Tans.	Non-tans.	Moistures.	Insolubles.
One year old ...	8·3	12·3	8·2	71·2
Two years old ...	9·3	12·0	8·1	70·6
Three years old ...	10·2	11·8	9·6	68·4
Four years old ...	12·6	11·5	8·0	67·9
Five years old ...	9·6	13·6	9·3	67·5
	9·9	13·1	11·7	65·3

Cassia auriculata.—The net annual revenue from Cassia auriculata (Avaram), admittedly the best tan-stuff in India, varies from Rs. 1,50,000 to Rs. 1,75,000.

It was decided to carry out systematic examination of this valuable tan bark from seedling plants and coppice shoots of varying ages and growing on different soils to determine its most economic exploitable age. To get bark of known ages, the shrub has to be raised in plantations.

During the year plantations were newly formed in Kambakam and Arlova reserves in Nellore and Vizagapatam districts. Five acres were sown in each locality. To the old plantations, 10 acres in Gonda reserve (Anantapur district) and 5 acres at Pecheruvu (Kurnool West district) were added to and sown in July 1929.

The stripping of the bark is tedious and laborious. A machine for the purpose was evolved by Mr. Guthrie, Principal of the Leather Trades Institute, and tested at Kandi Kuppa, but proved to be not sturdy enough. A simple machine would prove of considerable value.

MADRAS,
8*th July* 1930.

M. A. HAFIZ,
Deputy Forest Utilization Officer.

ADMINISTRATION REPORT—1929-30—FOREST ENGINEERING DIVISION, MADRAS.

The duties of the Madras Forest Engineer's division was taken over by Mr. E. S. Dawson, I.E.F.S., Forest Engineer-in-charge, Exploitation division, on 18th April 1929. Mr. C. J. VanHaeften was in charge from 1st April 1929 to 18th April 1929. In G.O. No. 1641, Development, dated 1st October 1929, the two divisions were amalgamated and all the posts of office staff were abolished with the exception of one peon, as below:—

Accountant	...	To be kept in abeyance till the post is absorbed in any other permanent vacancy.
Two clerks	...	Abolished on 1st May 1929 and 1st July 1929.
Typist	...	Do. on 7th November 1929.
Tracer	...	Transferred to Chief Forest Engineer's Office on 1st May 1929.
Three peons	...	One post abolished from 1st May 1929, one from 16th May 1929 and one from 1st November 1929.

It continued as a separate unit for account purposes till the end of October 1929 during which period departmental accounts had to be rendered to the Accountant-General in addition to commercial accounts for the Chenat Nair concern.

The works done by this division during the year were—

(1) Completion of District Forest Officer's quarters at Chittoor. Total cost of Rs. 22,072-13-2 (estimate Rs. 20,000).

The work was completed and handed over to the District Forest Officer on 16th April 1929. The expenditure during the year on this was only Rs. 111. The excess expenditure of Rs. 2,072-13-2 over the original estimate was sanctioned in G.O. Mis. No. 1820, Development, dated 25th October 1929.

(2) Completing District Forest Officer's quarters, Vellore. Total expenditure Rs. 22,959-3-6 (estimate Rs. 23,000).

The works were transferred to the charge of the District Forest Officer, but the expenditure amounting to Rs. 4,154-10-0 was incurred in this division through the District Forest Officer. The building was completed and handed over on 8th July 1929.

(3) Construction of District Forest Officer's quarters, Olavakkot. Total expenditure Rs. 17,308-1-4 (estimate Rs. 18,000).

The building was almost completed by the end of March 1929 and was handed over to the District Forest Officer in the beginning of April 1929. The expenditure during the year was Rs. 833-10-4.

(4) Construction of road from Chedleth Saw Mill to Sultan's Battery. (Estimate Rs. 35,000.) Total expenditure Rs. 34,998-10-0.

The work was completed during the year and handed over to the District Forest Officer on 30th April 1929.

(5) Construction of two girder bridges and a road connecting Karulai with Nedungayam. Estimate amount Rs. 1,01,200.

The work was sanctioned in G.O. Mis. No. 628, Development, dated 4th April 1929. Regular work on the bridges could not be started till the end of the monsoon.

The original estimate for the road was only Rs. 10,200 which had to be revised as there were some discrepancies in the original estimate. Iron materials required for the two bridges were purchased during the year.

The following survey works were also done during the year :—

(1) Investigation of roads in Silent Valley.

(2) Survey of Anchatti-Kundukotta road—Improvements.

(3) Survey for a tramline in New Amarampalam project at Nilambur.

General.—Mr. M. S. Raghavan, Extra Assistant Conservator of Forests, was posted in November 1929 for supervising the survey of the tramline at Nilambur.

All other field establishments were transferred to other divisions on the completion of each work except one ranger and a forester (Mr. K. P. Chathu Nair and Forester Sreedhara Mannadiyar) who were retained for the bridge construction and survey work.

COIMBATORE,
16*th September* 1930

J. A. WILSON,
Forest Engineer, Coimbatore.

ADMINISTRATION REPORT—1929-30—CHENAT NAIR EXPLOITATION DIVISION.

The year witnessed the final closing down of the concern as a whole on 31st October 1929. From this date therefore from a commercial point of view Chenat Nair goes into liquidation.

This report accordingly deals primarily with the period 1st April 1929 to 31st October 1929 but also indirectly with the subsequent period to the end of the year, as it was deemed advisable to incur expenditure so as to realize to the full such assets as logs and sleepers and these had to be extracted subsequent to 31st October 1929.

General policy.—There was no change. Hopea parviflora, Mesua ferrea and Xylia xylocarpa were converted into sleepers by hand sawing in the forest. Kolmarams, chattams and vittams were also hand sawn in areas inaccessible for ordinary logging operations. All other timbers were brought to the mill depot either for conversion in the mill or for direct sale.

Comparison with previous years reveals the fact that sleeper production has gradually increased from its start in 1926-27 until in 1928-30 it is without doubt the most important and profitable item.

The following quantities of sleepers have been produced by the concern :—

——	1926-27.	1927-28.	1928-29.	1929-30.
Broad gauge	2,325	7,259	12,439	12,382
Meter gauge	1,821	11,999	11,018	9,738
Special	200	502	245	666
Narrow gauge	1,340	52	..	..

A relative statement of costs is also interesting—

——	1926-27.	1927-28.	1928-29.	1929-30.
	RS. A. P.	RS. A. P.	RS. A. P.	RS. A. P.
Broad gauge—				
Actuals	3 13 2	3 9 9	3 8 3	3 0 8
Overheads	..	2 1 0	1 6 6	1 14 1·6
Total ..	3 13 2	5 10 9	4 14 9	4 14 9·6
Meter gauge—				
Actuals	1 13 5	1 11 9	1 10 11	1 7 4·3
Overheads	..	0 15 10	0 10 10	0 14 5·6
Total ..	1 13 5	2 11 7	2 5 9	2 5 9·9

Logs.—As orders to close the concern were issued felling was stopped in July 1929 and existing stocks in the forest were partly yarded and a small balance of inferior logs sold at site.

During the year therefore work was curtailed and as a result costs have increased. This was unavoidable in the circumstances where suitable elephant yarding was done and tractor yarding continued to be used in the hilly tracts.

During the year 217,107 cubic feet were felled. Of this quantity 97,220 cubic feet were hand sawn either into sleepers or other sizes and 107,113 cubic feet carted to main depot at Olavakkot.

The tractor yarded 37,811 cubic feet and elephants 73,410 cubic feet.

During the period 1st April 1929 to 31st October 1929 the cost of logs delivered at Olavakkot was As. 12-10·1 actuals plus As. 11-9·2 overheads, total Rs. 1-8-7·3 per cubic foot.

Communications and buildings.—No further construction of roads or bridges was undertaken. With the increase in length of hill road the repairs which had to be effected consequent on damage by the monsoon was high being Rs. 4,850-5-0.

Saw mill.—The mill continued to work one shift. Owing to a fracture of the crank-shaft of the main engine however work was stopped in the breaking down section for two months. The total absorption in log is therefore low and costs high.

The quantity of log sawn and its outturn is shown below together with the costs :—

Logs converted—38,333 cubic feet.
Outturn—19,857 cubic feet.
Percentage—51·88 per cent.
Cost of sawing—Rs. 2–4–0·7.
Cost per cubic foot of sawn timber—Rs. 4–11–2·4.

The mill closed down at the end of October.

Kiln.—The kiln continued to work as usual. In addition to timber from the Olavakkot mill, one or two petty lots from the portable mills were seasoned. The seasoning of petty lots naturally means higher costs.

The actual cost for the year is As. 7-5·7 actuals plus As. 3-8;6 overheads.

Box section.—This section continued to be started owing to a paucity of material requiring to be manufactured.

Machine shop.—Petty repairs to machinery were carried out as usual.

Wood workshop.—It is regrettable that the workshop has not been given sufficient time to enable mass production of popular products to be started. During the year orders were received which indicate beyond doubt that a basis for a good market was being laid.

The result of working is given below :—

Expenditure—Rs. 15,284. Receipts—Rs. 10,087-5-0.

Sales and utilization.—Total sales amount to Rs. 2,91,700.

There can be no doubt that the inability to clear stocks was due to the dull timber market. At the same time conversation with timber merchants reveals the fact that the quality of timber turned out is higher than the market really requires at present. The quantity of high grade timber required is no doubt large, but the species in which the high grade timber is required are limited to the few better known junglewoods such as karamarudu (*Terminalia tomentosa*), pillamarudu (*Terminalia paniculata*), etc.

The time must come, however, when the lesser known woods such as Poon (*Calophyllum tomentosum*), Pali (*Dichopsis elliptica*), *Acrocarpus fraxinifolius*, *Albizzia Lebbek* and *Odoratissima* and even *Cullenia* must come into their own and at a reasonable economic figure.

Even at present with a normal timber market such as existed in 1927-28, these species are absorbed in quantity by East Coast distributing centres such as Trichinopoly.

Mr. E. S Dawson, I.F.E.S., was in charge of the division throughout the year.

General remarks.—The year marks the closing down of a most interesting large-scale experiment and since this is the last report that will deal with the Chenat Nair concern itself it is advisable that items of outstanding interest be recorded.

The concern started as an experiment in exploiting Shola (evergreen) species of which nothing was known.

During the first stage logs were extracted to meet a demand in the Kolar Gold Field and no conversion into scantling attempted except on a very small scale.

The second stage witnessed the introduction of mechanical means of logging by tractors and utilization by conversion at the saw mill and so placing a finished product on the market.

The third stage evolved out of stage two by the repeated criticism of the concern as a losing unit and is a stage in which the concern worked as would a commercial firm, employing the cheapest means of carrying out each operation with a view to one item and one

item only, namely, profit. It witnessed the introduction of indigenous methods into the operation, viz., hand-sawing in the forest and elephant yarding, also a cutting down of overheads by the employment of contractors to a small extent. It becomes therefore a combination of many methods of exploitation. It is perhaps a matter for regret that one or two important methods could not be experimented on, viz., aerial ropeways, timber slides, forest railroads or tramways. Experience in such methods would have been valuable. Against this, however, valuable experience has been gained which enables a comparison to be effected between various possible methods which may be required in future schemes for exploitation of forest areas.

The following matters attract attention :—

(1) *Health.*—While working in the lower foot-hills malaria was very prevalent. Until 1927 subordinates and crew lived in good quarters at Sappal with an excellent water-supply. The height of the settlement was about 1,200 feet.

Despite this a record shows that in some months well over 30 per cent of time was lost through malaria. Such a loss of time has a direct effect on overhead costs. Not only this, a further indirect loss arises through the subordinate being unable to work at full capacity for sometime after he has had fever.

Anti-malarial measures were attempted and considerable sums spent in clearing undergrowth round the quarters to keep down mosquitoes. It is noted, however, that for a period of three years after clearing at any rate, the incidence of malaria did not appreciably decrease. A special investigation party had extreme difficulty in catching a mosquito at the site of the settlement.

This seems to indicate that some factor other than the mosquito is to blame. It has been suggested that an increase of susceptibility to chill consequent on the cool evening wind may have been responsible.

What is important is the fact that malaria has to be taken into consideration in such localities.

In this case the solution was one of despair and subordinates were transferred to the plains and taken out to work in motor buses. After this health improved considerably.

(2) The failure to sell logs in quantity throughout the history of the concern is adequate proof of lack of demand for log at the present time. This is a most important factor in dealing with evergreen species and the reason is not far to seek.

After felling, the average evergreen species degrades rapidly due to either fungoid attack, insect attack or to cracking.

Fungoid attack in the case of Cullenia excelsa alone cost the concern over Rs. 50,000 in 1925–27 and a very large quantity of useless log had to be sold for fuel. Other species similarly affected are *Holigarna Arnottiana*, *Eleocarpus tuberculatus*, *Polyalthia fragrans* and *Sterculia alata*. All these species will be rendered useless for good timber if left in the log for over six weeks to two months in a damp climate such as exists on the West Coast.

Sterculia alata is badly attacked by insects if left for more than two months without conversion.

Dichopsis is the worst species so far as cracking is concerned. Cases are innumerable in which a Dichopsis log felled in the hot weather has developed cracks 10 feet long within ten days of felling. *Sterculia alata* is also bad.

Dichopsis elliptica and *Cullenia excelsa* are two of the commonest shola species and where they occur very often form up to 60 per cent of the stand. The limitations of these species influence considerably any scheme for their exploitation. They must be converted as soon as possible after felling and if good outturn is to be obtained should be converted within one month of felling.

It is to be noted that if Cullenia is converted fresh, the scantlings obtained rarely get badly attacked by fungus. A case is on record where a fresh log was converted and the scantlings stacked outside through a West Coast monsoon. Degrade due to fungus was practically nil and the scantlings were sold after having been in the open for three months for Rs. 1-8-0 per cubic foot.

As pointed out Rs. 50,000 was lost through ignorance of this fact on *Cullenia* extracted from a small areas of 200 acres.

(3) Experience in mechanical logging has, so far as Madras is concerned, gone to indicate that tractor-logging is to be applied only in areas where country methods cannot be economically applied, i.e., hill areas with steep slopes. Experience in the concern shows that elephant yarding in the lower areas was appreciably cheaper than the tractor.

So far as tractor yarding in itself is concerned, little use has been found in hilly areas for the Caterpillar tractor as such. Our Caterpillar tractor has almost invariably been used as a skidder by utilizing the winch attachment. By far the most efficient and economical work has been done by the skidder proper. This is natural. The Caterpillar tractor is primarily designed for haulage and not for skidding. The skidder is designed for the work and does it effectively and quickly.

Even the skidder has its limitation—a limitation which has gone to increase costs at Chenat Nair. Time lost in moving from

one setting to another is time wasted so far as outturn is concerned. The more often a skidder has to move therefore the more the waste of time. During the time occupied in moving the full cost of running the tractor is incurred and this has to be carried by the outturn. Hence the more moves made the higher the yarding costs.

The number of times a tractor moves is determined by the stand of timber on an area. In this concern we have dealt with stands varying from 200—500 cubic feet per acre of utilizable log. Compare this with the yields of 4,000 to 6,000 cubic feet per acre of conifer forest and it is easy to realize why tractor charges are high. The average yarding costs by tractor are given below including all charges of crew, fuel, oil, spares and depreciation :—

	RS.	A.	P.
1925–26	0	3	2
1926–27	0	2	5
1927–28	0	2	8
1928–29	0	2	3
1929–30	0	4	10

These figures form a useful basis for future estimates of costs.

(4) It has been proved beyond doubt that hand-sawing at site of all produce for which there is a sale is preferable to carting in log and conversion at the mill. In some cases however this is not possible.

This concern was the first unit to realize the existence of indigenous timber units, viz., the kolmaram and chattam (Malabar) and the vittam (Coimbatore). In 1926-27-28 it was proved that the production of these units was a profitable business even including overhead charges. In this respect it is worthy of note that the cross section of kolmaram and chattams varies with the species, viz., Dichopsis kolmaram 16 ft. by 6 in. by 4 in. Acrocarpus kolmaram 16 ft. by 7 in. by $3\frac{1}{2}$ in.

Again in the case of sleepers, hand-sawing at site has proved a most profitable proposition.

Certain species however are much easier to sell and make better prices in boards and planks. Some are in fact unsaleable as scantling. Hand-sawing of boards and planks is not a good proposition and a mill is a necessity if we have to cater for this market. Species which come under this class are chiefly soft woods, though hard woods such as Poon and White Cedar are better utilized through a mill. Among soft woods which cannot be utilized by sawing at site are *Polyalthia fragrans, Eleocarpus tuberculatus, Holigarna arnottiana, Myristica attenuata, Machilus macrantha Sterculia alata, Alstomia scholaris,* and *Bombax malabaricum.*

(5) *Communications.*—It has been proved once again that the cheapest form of transport by land is the country cart. It is

necessary however to construct extraction roads to tap the dumps yarded by tractors. Here again the poor stand per acre has been largely responsible for high costs. Overheads due to roads alone amount to As. 2 per cubic foot of timber extracted. This is equivalent to As. 3-6 per cubic foot of scantling produced in the mill. It must be emphasized that with a medium stand of 1,000 cubic feet per acre the resultant saving to the concern would have been Rs. 10,000 per annum on cost of timber.

The total loss on the concern up to 31st October 1929 is Rs. 9,83,395-11-5. Against this loss the concern has done most valuable work in bringing to the notice of the most important consuming authorities, e.g., Public Works Department and railways, the various species which exist in evergreen jungles which will in the future become of importance.

So far as the department is concerned a great deal of valuable experience has been gained both as regards suitable methods of exploitation and utilization of previously unknown species. It is essential that the information gained should not be lost sight of, as it has a great potential value.

COIMBATORE,
19*th September* 1930.

J. A. WILSON,
Forest Engineer, Coimbatore.

ADMINISTRATION REPORT—SAW MILLS AND EXTRACTION DIVISION—1929-30.

The charge of the division was held by—

W. F. Chipp, Esq., D.S.O., M.C., from 1st April to 21st August 1929.

J. A. Wilson, Esq., I.F.S., from 22nd August to 30th September 1929.

W. F. Chipp, Esq., D.S.O., M.C., from 1st October 1929 to 31st March 1930.

Central stores.—This unit continued to function satisfactorily and was handed over at the end of the year to the Forest Engineer, Exploitation Division, Olavakkot.

Beypore Saw Mill.—The general working of this mill continued satisfactory. During the year there was one serious breakdown in the Fordson engine which had to be kept idle for some time as the welding executed locally did not stand. This affected outturn, as it was necessary to take one engine from the rip benches to run the breakdown saw ; hence the large outturn from the breakdown saw could not be handled by the two small rip benches worked by Cletrac.

Teak was converted for special orders and subsequently the mill proceeded to convert pillamarudu (*Terminalia paniculata*). The better quality of the junglewood log resulted in an improvement in percentage of outturn. The rate of sawing is however slower with this species than with teak.

The Key Press after many adjustments was got into working order and the production of keys from waste pieces which had been reserved for the purpose was started.

The total intake of log was 85,865 cubic feet and the outturn 48,677 cubic feet equivalent to 56·7 per cent.

It is to be noted that the book value of engines and buildings for this mill is at the end of the year practically nil. Both No. 1 Holt and the Cletrac have been fully depreciated.

This mill has had a consistently good record for one of its type. Comparative figures of absorption and outturn are given below :—

	1927-28.	1928-29.	1929-30.
Absorption ...	95,669 cubic feet	86,090 cubic feet	85,865 cubic feet.
Outturn ...	54·7 per cent	52·6 per cent	56·7 per cent

The motive power has unfortunately and unavoidably been supplied by petrol engines which are very expensive to run. Owing to this reason sawing charges are higher than would be the case with either steam engines or crude oil engines.

It has indirectly had an appreciable effect on the West Coast timber market in keeping up the value of logs for which a balance sheet can give no credit.

It is to be noted for comparative purposes that were the charges of direct sawing at the Parappa mill—a steam driven concern—applied to this mill, the all-in cost of sawing would have been As. 8-2·4.

Topslip saw mill.—The year witnessed a gradual improvement in the working of the mill despite the unhealthiness of the locality. As usual malaria took its toll and it was necessary to replace the crew which started the year with an entirely new set of men.

An extension to the Bolter machine was fitted up and was a great success and the Fordson installed during the previous year to supplement the inadequate power of Supersentinel engine continued to work satisfactorily.

During the year the intake of logs was 43,930 cubic feet and outturn 18,908 cubic feet as compared with 38,543 cubic feet and 13,408 cubic feet in the previous year.

The quality of log supplied to the mill continued to be only fair to poor. With such logs it is impossible to expect a reasonable outturn. Even if they were hand-sawn they would not yield an outturn of more than 50 per cent.

As usual all waste slabs were sold to local purchasers.

This mill has been handicapped from the start by inadequate power, logs of poor average quality and bad health which has necessitated the replacement of the crew every year. Its capacity even under good conditions is not more than 80 per cent of other mills owing to the breakdown bench which is slow as compared with the American benches of other mills. The mill was closed on 31st December 1929.

Chedleth saw mill.—This mill started well, absorbing over 5,000 cubic feet of logs during the first quarter with 40 per cent outturn. By July however all available log had been converted including a number of logs previously considered unsuitable for sawing and had to close down until new stocks arrived. The conversion of such logs reduced the outturn considerably.

During the year the total log sawn was 66,700 cubic feet yielding 25,600 cubic feet of outturn or 38·3 per cent a slight improvement on the previous year.

The improvement in the health of the staff was maintained and is a remarkable tribute to the efficiency of the compounder who is

to be congratulated on his work. The cost of this improvement in health is however considerable, totalling Rs. 728 for the year.

As usual coolie labour was poor and will remain so for many years to come.

The division undertook again the work of transporting scantling to Nanjangod and cleared over 20,000 cubic feet up to the end of the year, leaving only a balance of 3,000 cubic feet.

The mill was closed at the end of the year.

Parappa saw mill.—The mill worked efficiently throughout the year. It is the best mill in the division and is an object lesson on how such a mill can be run under average conditions.

During the year the intake was 86,944 cubic feet and outturn 50,001 cubic feet or 57·6 per cent which is very satisfactory indeed as logs are small and in some cases knotty. It is to be remembered however that this is the result of logs being issued to the mill at accurate measure on which point there was considerable argument.

The division again handled the work of transport of sawn scantling from mill depot to Kasaragod and this was carried out satisfactorily by cartmen recruited departmentally.

The mill was closed at the end of the year.

Beypore and Parappa being two mills which have run consistantly well throughout their life, one being driven by steam and one by petrol engines, a comparison of costs of conversion is given below :—

	1928-29.			1929-30.		
	RS.	A.	P.	RS.	A.	P.
Beypore	0	13	10·27	0	11	9·6
Parappa	0	11	0·39	0	8	0·7

The difference would have been greater had the Parappa mill not had to bear extra charges incidental to its position 26 miles from Kasaragod for skilled operatives. These charges amount to Rs. 800 more than Beypore, equivalent to about a quarter-anna per cubic foot of sawn outturn.

It is a point worth emphasis that direct charges on the Beypore mill amount to Rs. 26,258 for the year as against Rs. 14,173 at Parappa equivalent respectively to As. 8-7·6 and As. 4-6·4 respectively per cubic foot of outturn. This difference is represented by the cost of Powerin (petrol).

General remarks on mills.—Out of four mills operated, two must be considered as successful from a saw-milling point of view, viz., Beypore and Parappa.

The general efficiency of staff resulting from the fact that it was possible to *keep* a gang when once trained was high and resulted in good absorption and satisfactory outturn in both quantity and quality. When the quality of sawn outturn is described as

satisfactory it must be qualified by adding judged by the type of mill and machinery employed.

In no single mill was the power really adequate. A 60-inch inserted tooth rack bench for breaking-down alone absorbs up to 50 b.h.p. and a 54-inch up to 40 b.h.p. The result was that saws often ran at low speed especially in hard timbers, making really first-class sawing as understood in England impossible.

The general quality was however quite up to and possibly better than the standard demanded by the local market.

Two mills, viz., Topslip and Chedleth, cannot be considered to have operated well, though they improved during the year. Both mills were chiefly handicapped through their situation in an unhealthy climate where it was impossible to keep a staff of operators and where coolie labour was of the worst possible type, and in consequence most expensive.

Topslip was further handicapped by the deplorably inadequate power of the Supersentinal engine for the machines it had to drive.

Valparai sleeper concern.—During the year the main extraction work on the north side of the river was completed and extraction on the south side commenced. As it was not economical to erect a bridge and extend the present road, a ropeway was erected to tap the area at a cost of Rs. 2,136. This ropeway functioned satisfactorily.

Despite the fact that to transport a sleeper over the ropeway alone costs approximately 1 anna, the all-in extraction cost shows a decrease of 2 pies per cubic foot on last year's figure. This cannot but be considered satisfactory.

During the year a total of 59,347 cubic feet of sleepers and scantlings of all species were extracted as against 39,550 cubic feet in the previous year, at an average cost of Rs. 1-15-7·5 delivered at Pollachi.

In this total are included 2,087 cubic feet of red cedar sleepers sold to Messrs. Spencer & Co., for the manufacture of cigar boxes.

The selling price realized for sleepers was Rs. 2-9-7 per cubic foot and of red cedar Rs. 1-11-2 per cubic foot.

This sale of red cedar is liable to be criticised as showing a loss since the average rate of production is Rs. 1-15-7. Such criticism is answerable when the full facts of the case are known. It cannot be denied that if the *actual* cost of sawing and transport are less than Rs. 1-11-2, then the extraction of such scantling is justified, since all overhead charges on roads, establishment, etc., would in any case have to be borne by the concern and any profit made on actual sawing goes to reduce such overhead charges on the main operation—sleeper extraction.

Deducting, therefore, such overheads from the production figure of Rs. 1-15-7, viz.—

	RS.	A.	P.
Overheads and interest on capital ...	0	2	3·3
Transport charges excepting actuals ...	0	2	10.0
Other direct charges	0	2	2·9
	0	7	4·2

we find that such is the case. In addition it must be remembered that the average cost of conversion of As. 12-9·1 relates chiefly to the conversion rates for Mesua ferrea, a hard timber, whereas red cedar is a soft timber and sawing charges accordingly lighter.

Thus the actual result of this subsidiary operation so far as the concern is concerned is a gain of Rs. 390 which goes towards reducing all-in charges on the main operation.

The net result of the operation is a profit of Rs. 12,040-6-7 as against Rs. 15,320-8-9 last year, a profit of 9·4 per cent.

Mechanical extraction, Nilambur.—This section operated from 1st April to 30th November 1929 when it had to close owing to there being no work ready. As a result the total quantity of timber yarded fell from 80,560 to 69,471 cubic feet and the cost of yarding rose from As. 3-0·9 to As. 3-2·8.

This rate is high and the chief reason is owing to the fact that the unit had to close. At the same time since the unit would again have to open up, it was essential to maintain a staff sufficient to train a new staff when required. The cost of this reserve staff had to be borne by the low quantity yarded.

It is to be noted that such methods of operation cannot but be expensive. If mechanical extraction is to be economical it is essential that tractors be given full work. Again it is necessary that some attention be paid to the fact that, for economical work, felling must always be kept sufficiently ahead for a tractor to move to the next rig as soon as one rig is finished. Failure to do this resulted in a small amount of lost time on at least one occasion. A mere day however means a loss of Rs. 40 to Rs. 50.

The area worked was at Nellicutta, a feverish locality, and there was considerable difficulty in getting a staff together especially as the forester in charge had to recruit his own men without assistance from local staff who had at that time difficulty in getting adequate labour for their own work. This also accounts for higher costs.

COIMBATORE,
9th September 1930.

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